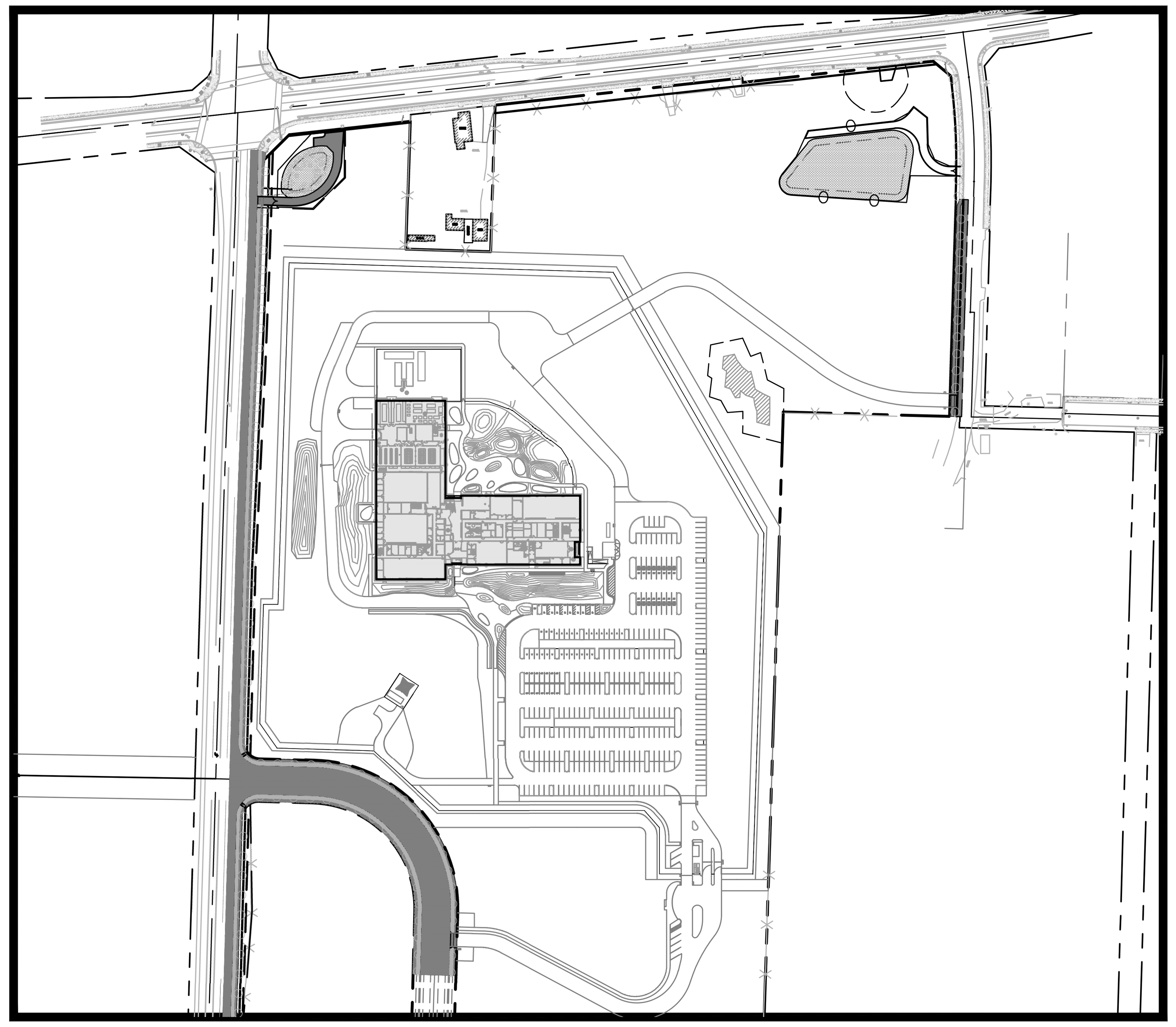
PORTLAND GENERAL ELECTRIC INTEGRATED OPERATIONS CENTER

TUALATIN, OREGON

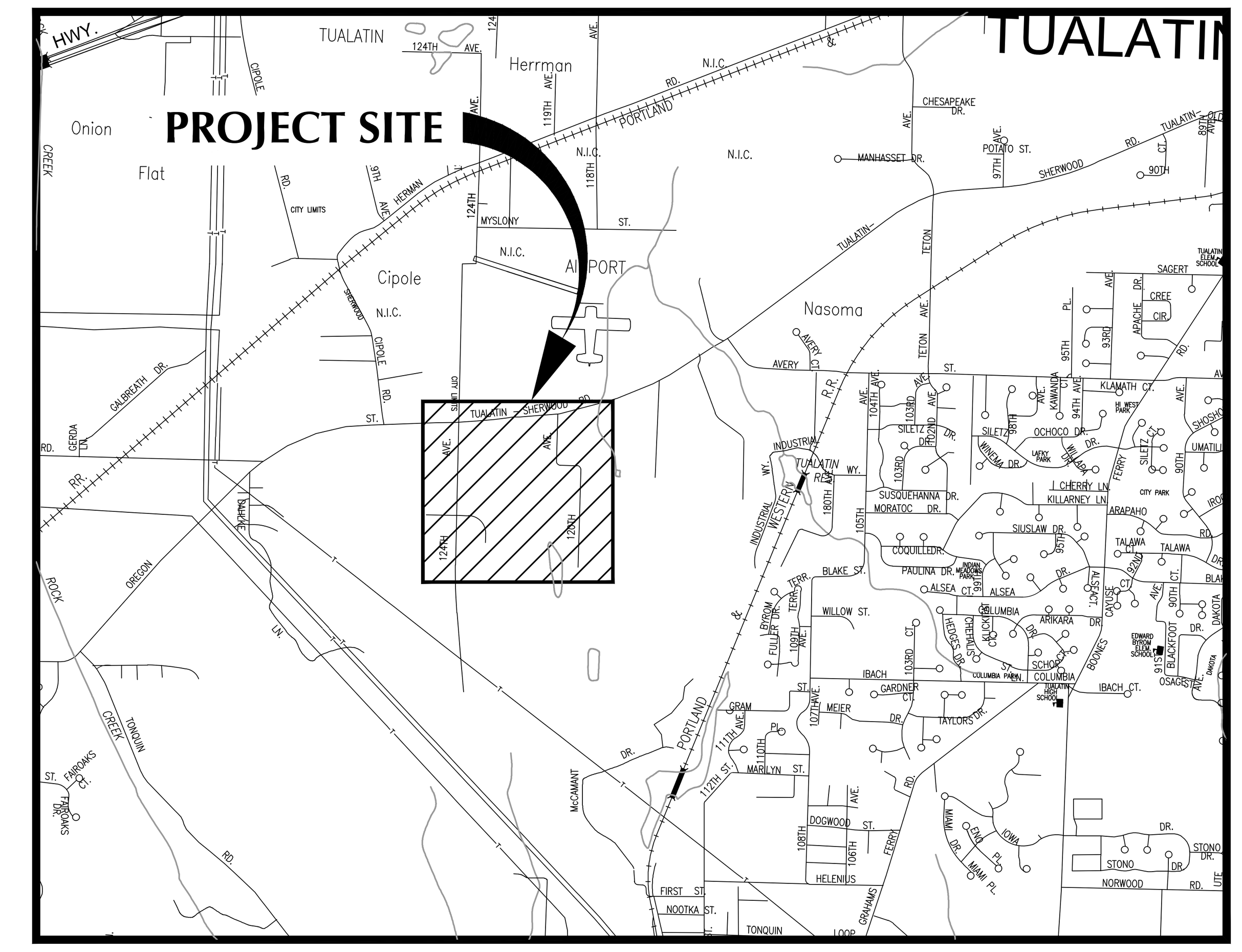
EXCAVATION, GRADING AND EROSION CONTROL PERMITS

ABBREVIATIONS

AC	ASPHALT CONCRETE
AD	AREA DRAIN
APPROX	APPROXIMATE
B	BOLLARD
BLDG	BUILDING
BOW	BACK OF WALK
BS	BOTTOM OF SWALE
	BOTTOM OF STAIR
BW	BOTTOM OF WALL
CB	CATCH BASIN
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CO	CLEANOUT
CONC.	CONCRETE
COTG	CLEANOUT TO GRADE
CP	CONTROL POINT
Δ	DELTA
D/W	DRIVEWAY
DIA.,Ø	DIAMETER
DIP	DUCTILE IRON PIPE
E	EASTING
EXIST./EX	EXISTING
FDC	FIRE DEPARTMENT CONNECTION
FF	FINISH FLOOR ELEVATION
FG	FINISH GRADE
FH	FIRE HYDRANT
FL	FLOWLINE
FND	FOUNDATION
G	GUTTER
GB	GRADE BREAK
GL	GAS LINE
GV	GATE VALVE
H	HEIGHT
HCP	HANDICAP PARKING SPACE
HP	HIGH POINT
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
INV	INVERT
IRR.	IRRIGATION
LP	LIGHT POLE
MH	MANHOLE
MIN	MINIMUM
N	NORTHING
O.D	OUTSIDE DIAMETER
OF	OUTFALL
OVH/OH	OVERHEAD
P/L	PROPERTY LINE
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
PCR	POINT OF CURB RETURN
PED	PEDESTRIAN
PIV	POST INDICATOR VALVE
PM	PARKING METER
POC	POINT ON CURVE
PP	POWER POLE
PRC	POINT OF REVERSE CURVATURE
PT	POINT OF TANGENT
P.U.E	PUBLIC UTILITY EASEMENT
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
PVT	PRIVATE
R	RIM
RD	ROOF DRAIN
R.O.W	RIGHT-OF-WAY
S	SLOPE (FT/FT)
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
SHT	SHEET
SS	SANITARY SEWER
SSMH	SANITARY SEWER MANHOLE
ST	STREET
STA	STATION
STD	STANDARD
S/W	SIDEWALK
TC	TOP OF CURB
TD	TRENCH DRAIN
TG	TOP OF GROUND
TP	TOP OF PAVEMENT
TRANS.	TRANSFORMER
TS	TOP OF STAIR
TW	TOP OF WALL
	TOP OF WALK
TYP	TYPICAL
UG	UNDERGROUND
UGE	UNDERGROUND ELECTRIC
W	WATER
W/	WITH
WCR	WHEEL CHAIR RAMP
WM	WATER METER
WV	WATER VALVE



SITE MAP
SCALE: 1" = 200'



VICINITY MAP
SCALE: NTS

MAP FROM: xxx ©

NOTICE TO EXCAVATORS:
ATTENTION: OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-001-0090. YOU MAY OBTAIN COPIES OF THE RULES BY CALLING THE CENTER.
(NOTE: THE TELEPHONE NUMBER FOR THE OREGON UTILITY NOTIFICATION CENTER IS (503)-232-1987).

POTENTIAL UNDERGROUND FACILITY OWNERS

Dig Safely.
Call the Oregon One-Call Center
1-800-332-2344

PROJECT CONTACTS

OWNER:
PORTLAND GENERAL ELECTRIC

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KPFF CONSULTING ENGINEERS
111 SW FIFTH AVENUE, SUITE 2500
PORTLAND, OREGON 97204
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CONTACT: MARK REULAND

ARCHITECT:
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338 NW FIFTH AVENUE
PORTLAND, OREGON 97209
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DREYFUS + BLACKFORD
3540 FOLSOM BOULEVARD
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338 NW FIFTH AVENUE
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CONTACT: DAN JENKINS

SHEET INDEX

SHEET NO.	SUBMISSION PREFIX	SHEET TITLE	SHEET DESCRIPTION
1	MG	C100	COVER SHEET
2	MG	C110	GENERAL NOTES
3	MG	C200	EXISTING CONDITIONS PLAN
4	MG	C250	DEMOLITION PLAN
5	MG	C400	OVERALL GRADING PLAN
6	MG	C401	GRADING PLAN
7	MG	C402	GRADING PLAN
8	MG	C403	GRADING PLAN
9	MG	C404	GRADING PLAN
10	MG	C405	GRADING PLAN
11	MG	C406	GRADING PLAN
12	MG	C900	EROSION CONTROL COVER SHEET
13	MG	C901	EROSION CONTROL NOTES
14	MG	C902	CLEARING & DEMOLITION EROSION AND SEDIMENT CONTROL PLAN
15	MG	C903	UTILITY, GRADING & STABILIZATION EROSION AND SEDIMENT CONTROL PLAN
16	MG	C904	EROSION AND SEDIMENT DETAILS
17	MG	C905	EROSION AND SEDIMENT DETAILS
		SURVEY	DRAWINGS (BY OTHERS)
18		1 OF 8	SURVEY
19		2 OF 8	SURVEY
20		3 OF 8	SURVEY
21		4 OF 8	SURVEY
22		5 OF 8	SURVEY
23		6 OF 8	SURVEY
24		7 OF 8	SURVEY
25		8 OF 8	SURVEY
		LANDSCAPE	DRAWINGS (BY OTHERS)
26	MG	L551	TREE REMOVAL AND PRESERVATION PLAN
27	MG	L552	TREE REMOVAL AND PRESERVATION PLAN
28	MG	L553	TREE PROTECTION DETAILS
29	MG	L560	EXISTING TREE TABLE

INDEX OF SHEETS INCLUDED FOR REFERENCE

SHEET NO.	SHEET TITLE	SHEET DESCRIPTION
1	C300	OVERALL SITE PLAN
2	C500	OVERALL STORM DRAINAGE PLAN
3	C501	STORM DRAINAGE PLAN
4	C502	STORM DRAINAGE PLAN
5	C503	STORM DRAINAGE PLAN
6	C504	STORM DRAINAGE PLAN
7	C505	STORM DRAINAGE PLAN
8	C506	STORM DRAINAGE PLAN
9	C510	STORM DRAINAGE PROFILES
10	C511	STORM DRAINAGE PROFILES
11	C600	OVERALL UTILITY PLAN
12	C601	UTILITY PLAN
13	C602	UTILITY PLAN
14	C603	UTILITY PLAN
15	C604	UTILITY PLAN
16	C605	UTILITY PLAN
17	C606	UTILITY PLAN
18	C610	SANITARY SEWER PROFILES
19	C611	SANITARY SEWER PROFILES
20	C800	DETAILS
21	C801	DETAILS
22	C802	DETAILS
23	C803	DETAILS
24	C804	DETAILS
25	C805	DETAILS
26	C806	DETAILS
27	C807	DETAILS

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05/31/19
REGISTERED PROFESSIONAL ENGINEER
OREGON
MARK G. REULAND
DIGITALLY SIGNED
EXPIRATION DATE: 12/31/20

PORTLAND GENERAL ELECTRIC INTEGRATED OPERATIONS CENTER

PORTLAND GENERAL ELECTRIC
12150 SW TUALATIN-SHERWOOD ROAD
TUALATIN, OR 97062

EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

REVISIONS

CHECKED BY: MR
ISSUE DATE: 3 JUNE 2019
PROJECT NO: P18-003

COVER SHEET

MG C100

GENERAL NOTES

1. SURVEY PROVIDED BY NORTHWEST SURVEYING, DATED JANUARY 16, 2019 AND UPDATED ON MARCH 25, 2019. ELEVATIONS ARE BASED ON WASHINGTON COUNTY VERTICAL DATUM ESTABLISHED PER BENCH MARK NO. 102 LOCATED A BRASS DISK LOCATED AT THE INTERSECTION OF SW CIPOLE ROAD AND THE SOUTHERN PACIFIC RAILROAD RIGHT-OF-WAY WITH AN ELEVATION OF 157.30 ON THE NGVD DATUM. THAT ELEVATION WAS CONVERTED TO NAVD 1988 DATUM BY USING THE WASHINGTON COUNTY AVERAGE ADJUSTMENT OF 3.52 FEET. THE BENCHMARK ELEVATION ON THE NAVD 1988 DATUM IS 160.82.
2. CONSTRUCTION LAYOUT (ALL ACTUAL LINES AND GRADES) SHALL BE STAKED BY A PROFESSIONAL SURVEYOR, REGISTERED IN THE STATE OF OREGON, BASED ON COORDINATES, DIMENSIONS, BEARINGS, AND ELEVATIONS, AS SHOWN, ON THE PLANS.
3. PROJECT CONTROL SHALL BE FIELD VERIFIED AND CHECKED FOR RELATIVE HORIZONTAL POSITION PRIOR TO BEGINNING CONSTRUCTION LAYOUT. SEE SHEET C300.
4. PROJECT CONTROL SHALL BE FIELD VERIFIED AND CHECKED FOR RELATIVE VERTICAL POSITION BASED ON THE BENCHMARK STATED HEREON, PRIOR TO BEGINNING CONSTRUCTION LAYOUT.
5. WHEN DIMENSIONS AND COORDINATE LOCATIONS ARE REPRESENTED – DIMENSIONS SHALL HOLD OVER COORDINATE LOCATION. NOTIFY THE CIVIL ENGINEER OF RECORD IMMEDIATELY UPON DISCOVERY.
6. BUILDING SETBACK DIMENSIONS FROM PROPERTY LINES SHALL HOLD OVER ALL OTHER CALLOUTS. PROPERTY LINES AND ASSOCIATED BUILDING SETBACKS SHALL BE VERIFIED PRIOR TO CONSTRUCTION LAYOUT.
7. CONTRACTOR SHALL PRESERVE AND PROTECT FROM DAMAGE ALL EXISTING MONUMENTATION DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING AND PAYING FOR THE REPLACEMENT OF ANY MONUMENTS DAMAGED OR REMOVED DURING CONSTRUCTION. NEW MONUMENTS SHALL BE REESTABLISHED BY A LICENSED SURVEYOR.
8. SOME SITE DEMOLITION AND UTILITY RELOCATION HAS BEEN PERFORMED. SURVEY MAY NOT BE COMPLETE OR ACCURATE. CONTRACTOR TO VERIFY EXISTING SITE CONDITIONS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ENGINEER PRIOR TO BEGINNING CONSTRUCTION.
9. CONTRACTOR TO REFERENCE SOILS REPORT BY GRI DATED MARCH 7, 2019 FOR THE SITE SOILS CONDITIONS.
10. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THESE PLANS, THE PROJECT SPECIFICATIONS AND THE APPLICABLE REQUIREMENTS OF THE 2015 OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE 2014 OREGON PLUMBING SPECIALTY CODE AND REQUIREMENTS OF THE CITY OF OREGON.
11. THE COMPLETED INSTALLATION SHALL CONFORM TO ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES, ORDINANCES AND REGULATIONS. ALL PERMITS, LICENSES AND INSPECTIONS REQUIRED BY THE GOVERNING AUTHORITIES FOR THE EXECUTION AND COMPLETION OF WORK SHALL BE SECURED BY THE CONTRACTOR PRIOR TO COMMENCING CONSTRUCTION.
12. ATTENTION: OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-001-0090. YOU MAY OBTAIN COPIES OF THE RULES BY CALLING THE CENTER. (NOTE: THE TELEPHONE NUMBER FOR THE OREGON UTILITY NOTIFICATION CENTER IS (503) 232-1987). EXCAVATORS MUST NOTIFY ALL PERTINENT COMPANIES OR AGENCIES WITH UNDERGROUND UTILITIES IN THE PROJECT AREA AT LEAST 48 BUSINESS-DAY HOURS, BUT NOT MORE THAN 10 BUSINESS DAYS PRIOR TO COMMENCING AN EXCAVATION, SO UTILITIES MAY BE ACCURATELY LOCATED.
13. THE LOCATION OF EXISTING UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE FOR INFORMATION ONLY AND ARE NOT GUARANTEED TO BE COMPLETE OR ACCURATE. CONTRACTOR SHALL VERIFY ELEVATIONS, PIPE SIZE, AND MATERIAL TYPES OF ALL UNDERGROUND UTILITIES PRIOR TO COMMENCING WITH CONSTRUCTION AND SHALL BRING ANY DISCREPANCIES TO THE ATTENTION OF KPFF CONSULTING ENGINEERS, 72 HOURS PRIOR TO START OF CONSTRUCTION TO PREVENT GRADE AND ALIGNMENT CONFLICTS.
14. THE ENGINEER OR OWNER IS NOT RESPONSIBLE FOR THE SAFETY OF THE CONTRACTOR OR HIS CREW. ALL O.S.H.A. REGULATIONS SHALL BE STRICTLY ADHERED TO IN THE PERFORMANCE OF THE WORK.
15. TEMPORARY AND PERMANENT EROSION CONTROL MEASURES SHALL BE IMPLEMENTED. THE CONTRACTOR SHALL ADHERE TO CITY OF TUALATIN FOR MINIMUM EROSION CONTROL MEASURES. THE ESC FACILITIES SHOWN IN THESE PLANS ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND TO ENSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DO NOT LEAVE THE SITE.
16. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL ROADWAYS, KEEPING THEM CLEAN AND FREE OF CONSTRUCTION MATERIALS AND DEBRIS, AND PROVIDING DUST CONTROL AS REQUIRED.
17. TRAFFIC CONTROL SHALL BE PROVIDED BY THE CONTRACTOR THROUGHOUT CONSTRUCTION. CONTRACTOR SHALL PROVIDE A TRAFFIC CONTROL PLAN TO CITY OF TUALATIN FOR REVIEW AND APPROVAL PRIOR TO COMMENCING CONSTRUCTION.
18. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND SCHEDULING ALL WORK WITH THE OWNER.
19. NOTIFY CITY OF TUALATIN INSPECTOR 72 HOURS BEFORE STARTING WORK. A PRECONSTRUCTION MEETING WITH THE OWNER, THE OWNER'S ENGINEER, CONTRACTOR AND THE CITY OF TUALATIN REPRESENTATIVE SHALL BE REQUIRED.

CONSTRUCTION NOTES

GENERAL

1. ACTUAL LINES AND GRADES SHALL BE STAKED BY A PROFESSIONAL SURVEYOR, REGISTERED IN THE STATE OF OREGON, BASED ON DIMENSIONS, ELEVATIONS AND BEARINGS AS SHOWN ON THE PLANS.
2. SUBGRADE AND TRENCH BACKFILL SHALL BE COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-698. FLOODING OR JETTING THE BACKFILLED TRENCHES WITH WATER IS NOT PERMITTED.
3. SPECIAL INSPECTION REQUIRED FOR ALL COMPACTION TESTING.

DEMOLITION

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEMOLITION AND DISPOSAL OF EXISTING AC, CURBS, SIDEWALKS AND OTHER SITE ELEMENTS WITHIN THE SITE AREA IDENTIFIED IN THE PLANS.
2. EXCEPT FOR MATERIALS INDICATED TO BE STOCKPILED OR TO REMAIN ON OWNER'S PROPERTY, CLEARED MATERIALS SHALL BECOME CONTRACTOR'S PROPERTY, REMOVED FROM THE SITE, AND DISPOSED OF PROPERLY.
3. ITEMS INDICATED TO BE SALVAGED SHALL BE CAREFULLY REMOVED AND DELIVERED STORED AT THE PROJECT SITE AS DIRECTED BY THE OWNER.
4. ALL LANDSCAPING, PAVEMENT, CURBS AND SIDEWALKS, BEYOND THE IDENTIFIED SITE AREA, DAMAGED DURING THE CONSTRUCTION SHALL BE REPLACED TO THEIR ORIGINAL CONDITION OR BETTER.
5. CONCRETE SIDEWALKS SHOWN FOR DEMOLITION SHALL BE REMOVED TO THE NEAREST EXISTING CONSTRUCTION JOINT.
6. SAWCUT STRAIGHT MATCHLINES TO CREATE A BUTT JOINT BETWEEN THE EXISTING AND NEW PAVEMENT.

UTILITIES

1. ADJUST ALL INCIDENTAL STRUCTURES, MANHOLES, VALVE BOXES, CATCH BASINS, FRAMES AND COVERS, ETC. TO FINISHED GRADE.
2. CONTRACTOR SHALL ADJUST ALL EXISTING AND/OR NEW FLEXIBLE UTILITIES (WATER, TV, TELEPHONE, ELEC., ETC.) TO CLEAR ANY EXISTING OR NEW GRAVITY DRAIN UTILITIES (STORM DRAIN, SANITARY SEWER, ETC.) IF CONFLICT OCCURS.
3. CONTRACTOR SHALL COORDINATE WITH PRIVATE UTILITY COMPANIES FOR THE INSTALLATION OF OR ADJUSTMENT TO GAS, ELECTRICAL, POWER AND TELEPHONE SERVICE.
4. BEFORE BACKFILLING ANY SUBGRADE UTILITY IMPROVEMENTS CONTRACTOR SHALL SURVEY AND RECORD MEASUREMENTS OF EXACT LOCATION AND DEPTH AND SUBMIT TO ENGINEER AND OWNER.

STORM AND SANITARY

1. CONNECTIONS TO EXISTING STORM AND SANITARY SEWERS SHALL CONFORM TO THE 2015 OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION, SECTION 00490, "WORK ON EXISTING SEWERS AND STRUCTURES".
2. BEGIN LAYING STORM DRAIN AND SANITARY SEWER PIPE AT THE LOW POINT OF THE SYSTEM, TRUE TO GRADE AND ALIGNMENT INDICATED WITH UNBROKEN CONTINUITY OF INVERT. THE CONTRACTOR SHALL ESTABLISH LINE AND GRADE FOR THE STORM AND SANITARY SEWER PIPE USING A LASER.
3. ALL ROOF DRAIN AND CATCH BASIN LEADERS SHALL HAVE A MINIMUM SLOPE OF 2 PERCENT UNLESS NOTED OTHERWISE IN THE PLANS.

WATER

1. ALL WATER AND FIRE PROTECTION PIPE SHALL HAVE A MINIMUM 36-INCH COVER TO THE FINISH GRADE.
2. ALL WATER AND FIRE PRESSURE FITTINGS SHALL BE PROPERLY RESTRAINED WITH THRUST BLOCKS PER DETAIL.
3. ALL WATER MAIN / SANITARY SEWER CROSSINGS SHALL CONFORM TO THE OREGON STATE HEALTH DEPARTMENT REGULATIONS, CHAPTER 333.

EARTHWORKS

1. CONTRACTOR SHALL PREVENT SEDIMENTS AND SEDIMENT LADEN WATER FROM ENTERING THE STORM DRAINAGE SYSTEM.
2. TRENCH BEDDING AND BACKFILL SHALL BE AS SHOWN ON THE PIPE BEDDING AND BACKFILL DETAIL, THE PROJECT SPECIFICATIONS AND AS REQUIRED IN THE SOILS REPORT. FLOODING OR JETTING THE BACKFILLED TRENCHES WITH WATER WILL NOT BE PERMITTED.

PAVING

1. SEE LANDSCAPE PLANS FOR SIDEWALK FINISHING AND SCORING PATTERNS.

MATERIAL NOTES

1. GENERAL: MATERIALS SHALL BE NEW. THE USE OF MANUFACTURER'S NAMES, MODELS, AND NUMBERS IS INTENDED TO ESTABLISH STYLE, QUALITY, APPEARANCE, AND USEFULNESS. PROPOSED SUBSTITUTIONS WILL REQUIRE WRITTEN APPROVAL FROM ENGINEER PRIOR TO INSTALLATION.
2. STORM AND SANITARY SEWER PIPING SHALL BE PVC PIPE OR DUCTILE IRON PIPE CONFORMING TO THE PROJECT SPECIFICATIONS; AS INDICATED IN THE PLANS. PIPES WITH LESS THAN 2' OF COVER SHALL BE C900/C905 PVC, HDPE OR DUCTILE IRON PIPE.
3. PRIVATE WATER MAINS 4-INCH DIAMETER AND LARGER SHALL BE DUCTILE IRON PIPE CONFORMING TO THE PROJECT SPECIFICATIONS; AS INDICATED IN THE PLANS.
4. PRIVATE WATER LINES 3-INCH DIAMETER AND SMALLER SHALL BE TYPE K COPPER TUBING CONFORMING TO THE PROJECT SPECIFICATIONS; AS INDICATED IN THE PLANS.
5. CONCRETE FOR CURBS AND SIDEWALKS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,300 PSI AT 28 DAYS.
5. CONCRETE FOR DRIVEWAYS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS.
6. PRESSURIZED STORM PIPING SHALL BE HIGH DENSITY POLYETHYLENE (HDPE AWWA C906) CONFORMING TO THE PROJECT SPECIFICATIONS; AS INDICATED IN THE PLANS.
7. PRESSURIZED SANITARY SEWER PIPING SHALL BE DUCTILE IRON OR HIGH DENSITY POLYETHYLENE (HDPE AWWA C906) CONFORMING TO THE PROJECT SPECIFICATIONS; AS INDICATED IN THE PLANS.

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EXPIRATION DATE: 12/31/20

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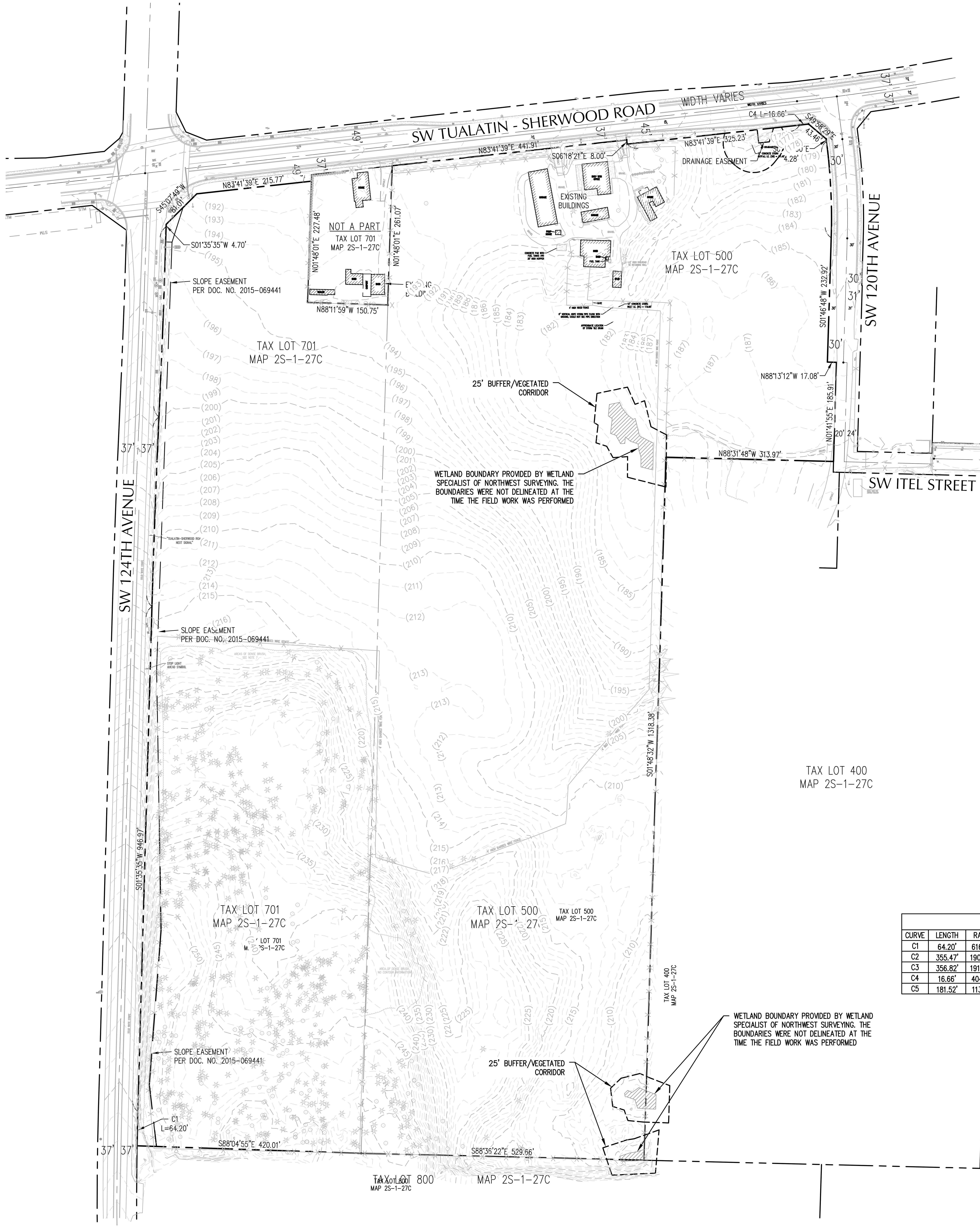
EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

REVISIONS

CHECKED BY:	MR
ISSUE DATE:	3 JUNE 2019
PROJECT NO:	P18-003

COVER SHEET

MG C110



LEGEND

CONIFEROUS TREE		DECIDUOUS TREE	
FIRE HYDRANT		GAS VALVE	
WATER BLOWOFF		GUY WIRE ANCHOR	
WATER METER		UTILITY POLE	
WATER VALVE		POWER VAULT	
WATER VAULT MANHOLE		POWER JUNCTION BOX	
SANITARY SEWER CLEAN OUT		STREET LIGHT	
SANITARY SEWER MANHOLE		TELEPHONE MANHOLE	
STORM SEWER CATCH BASIN		TELEPHONE/TELEVISION JUNCTION BOX	
STORM SEWER CURB INLET		TELEPHONE/TELEVISION RISER	
STORM SEWER MANHOLE		SIGNAL JUNCTION BOX	
MAILBOX		FOUND SURVEY MONUMENT	
SIGN			

RIGHT-OF-WAY LINE
BOUNDARY LINE
PROPERTY LINE
CENTERLINE
CURB
EDGE OF PAVEMENT
EASEMENT
FENCE LINE
GRAVEL EDGE

NOTES

1) THE MAJORITY OF THE FIELD SURVEYING FOR THIS MAP WAS COMPLETED JANUARY 4, 2019. A PORTION IN THE SOUTHWEST CORNER OF THE PROPERTY CONTAINS DENSE BRUSH AND IS TO BE SURVEYED IN THE NEAR FUTURE.

2) ELEVATIONS AND CONTOURS ARE BASED ON WASHINGTON COUNTY BENCHMARK NO. 102. THE BENCHMARK IS A BRASS DISK LOCATED AT THE INTERSECTION OF SW CIPOLE ROAD AND THE SOUTHERN PACIFIC RAILROAD RIGHT-OF-WAY. IT HAS AN ELEVATION OF 157.30 FEET ON THE NGVD 1929 DATUM. THAT ELEVATION WAS CONVERTED TO THE NAVD 1988 DATUM BY USING THE WASHINGTON COUNTY AVERAGE ADJUSTMENT OF 3.52 FEET. THE BENCHMARK ELEVATION ON THE NAVD 1988 DATUM IS 160.82 FEET.

3) THE BASIS OF BEARINGS FOR THIS SURVEY IS THE OREGON STATE PLANE COORDINATE SYSTEM, NORTH ZONE, NAD(83).

4) RIGHT-OF-WAY WIDTHS ARE BASED ON THE DEDICATION DEEDS, COUNTY TAX ASSESSOR'S MAP AND MULTIPLE RECORDED SURVEYS.

5) THE EASEMENTS SHOWN ON THIS MAP ARE BASED ON THE PRELIMINARY REPORT, PREPARED BY FIDELITY NATIONAL TITLE COMPANY OF OREGON, WITH ORDER NUMBER 45141819773 WITH AN EFFECTIVE DATE OF NOVEMBER 1, 2018 AT 8:00 AM.

6) THE UNDERGROUND UTILITIES ARE BASED ON THE MARKINGS PER LOCATE TICKET NUMBERS 18280911 AND 18291289.

7) WITHIN THE SOUTHERLY PORTION OF TAX LOT 700 WHERE THE TREES ARE LOCATED THERE ARE AREAS OF DENSE BRUSH. THE CLIENT PROVIDED SOME BRUSH REMOVAL TO ACCESS THE TREES, AND AN EFFORT WAS MADE TO PROVIDE A DETAILED TOPOGRAPHY OF THAT AREA. HOWEVER CONTOURS MAY VARY FROM ACTUAL GROUND ELEVATION WITHIN THE REMAINING AREAS OF DENSE BRUSH.

8) REFERENCE SURVEY PLANS FOR EXISTING UTILITIES LINES AND STRUCTURES LOCATIONS.

UTILITY STATEMENT

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

CURVE TABLE

CURVE	LENGTH	RADIUS	DELTA ANGLE	CHORD
C1	64.20'	6163.00'	0°35'49"	S01°17'41"W 64.20'
C2	355.47'	19061.59'	1°04'07"	S02°07'38"W 355.46'
C3	356.82'	19135.59'	1°04'06"	N02°07'38"E 356.81'
C4	16.66'	4045.00'	0°14'10"	N83°34'34"E 16.66'
C5	181.52'	1135.00'	9°09'48"	N02°48'06"W 181.33'

SCALE
1 INCH = 100 FEET
100 0 100 200

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REVISIONS

CHECKED BY: MR
ISSUE DATE: 3 JUNE 2019
PROJECT NO: P18-003

EXISTING CONDITIONS PLAN

MG C200

File: N:\c\p\2018\180045-PGE-Integrated-Operations-Center\CAD\PLOT\8045-C200-EXST.dwg TAB:C200
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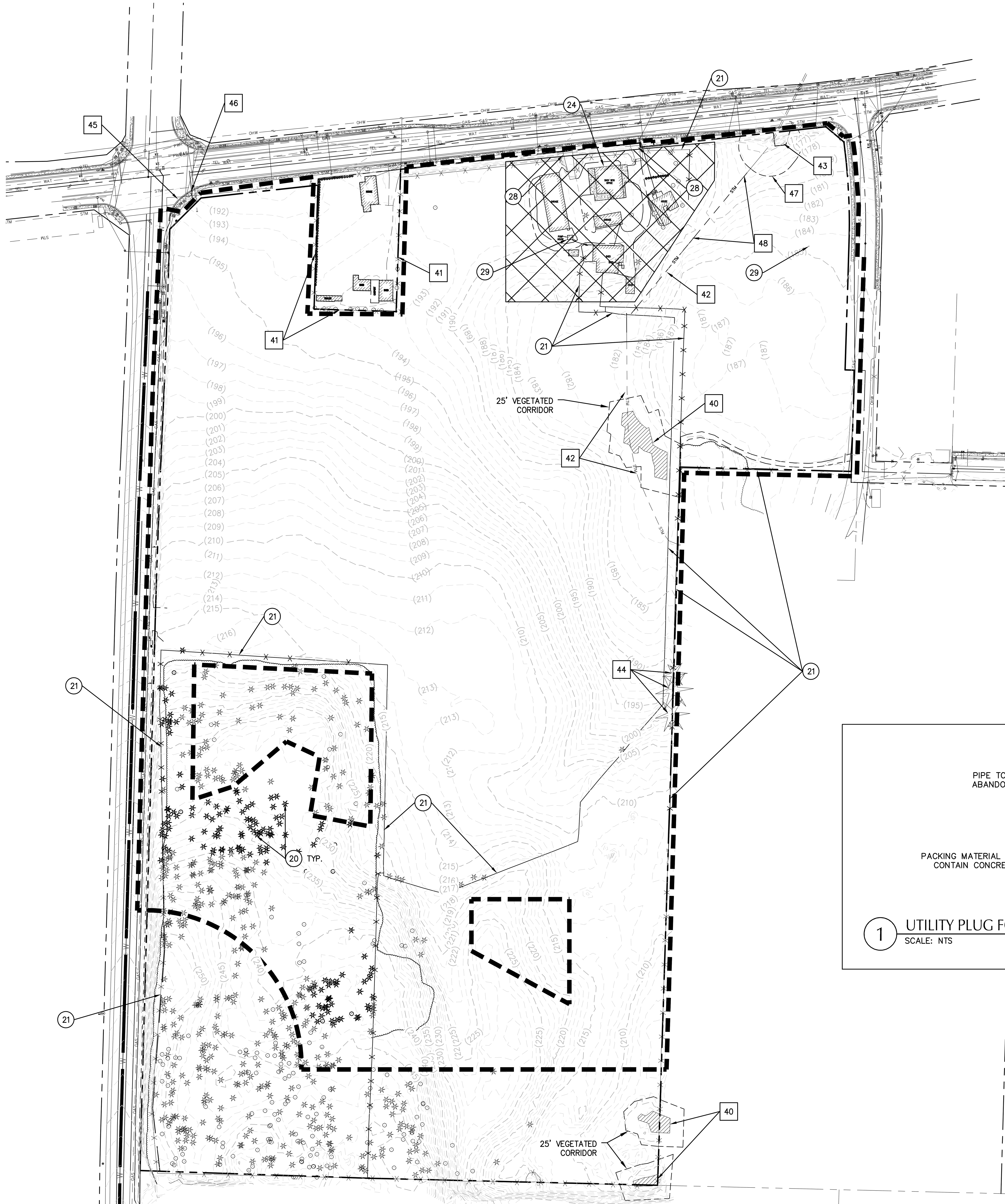

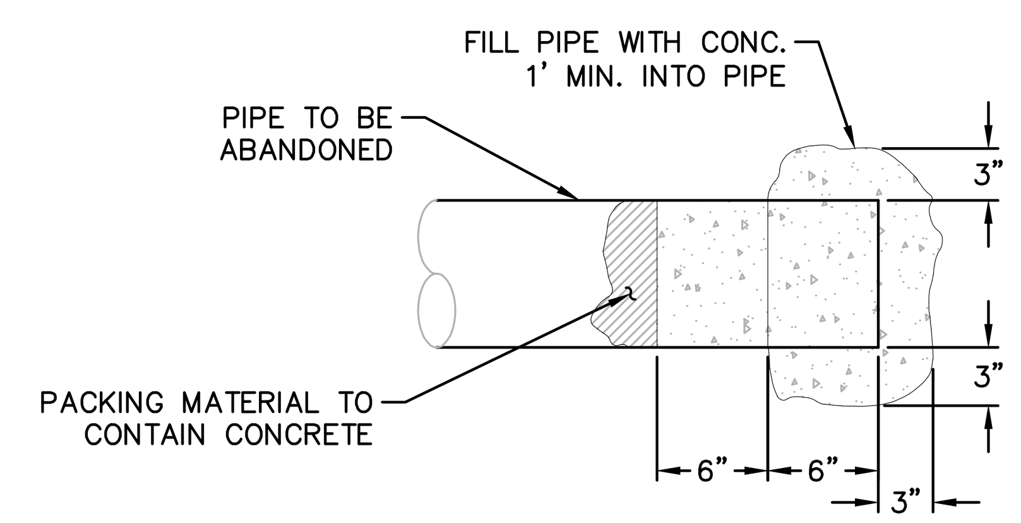

1 UTILITY PLUG FOR ABANDONED PIPE
SCALE: NTS

SHEET NOTES

1. CONTRACTOR MAY STAGE WITHIN LIMITS OF DEMOLITION.
2. GENERAL DEMOLITION PERMIT SHALL BE SECURED BY THE CONTRACTOR.
3. ALL TRADE LICENSES AND PERMITS NECESSARY FOR THE PROCUREMENT AND COMPLETION OF THE WORK SHALL BE SECURED BY THE CONTRACTOR PRIOR TO COMMENCING DEMOLITION.
4. THE CONTRACTOR SHALL PRESERVE AND PROTECT FROM DAMAGE ALL EXISTING RIGHT-OF-WAY SURVEY MONUMENTATION DURING DEMOLITION. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING AND PAYING FOR THE REPLACEMENT BY A LICENSED SURVEYOR OF ANY DAMAGED OR REMOVED MONUMENTS.
5. PROTECT ALL ITEMS ON ADJACENT PROPERTIES AND IN THE RIGHT OF WAY INCLUDING BUT NOT LIMITED TO SIGNAL EQUIPMENT, SIDEWALKS, STREET TREES, STREET LIGHTS, CURBS, PAVEMENT AND SIGNS. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING ANY DAMAGED ITEMS TO ORIGINAL CONDITION.
6. SAWCUT STRAIGHT LINES IN SIDEWALK, AS NECESSARY.
7. CONTRACTOR IS RESPONSIBLE TO CONTROL DUST AND MUD DURING THE DEMOLITION PERIOD, AND DURING TRANSPORTATION OF DEMOLITION DEBRIS. ALL STREET SURFACES OUTSIDE THE CONSTRUCTION ZONE MUST BE KEPT CLEAN.
8. ALL EXPOSED PORTIONS OF UNDERGROUND UTILITIES TO BE ABANDONED SHALL BE PLUGGED PER DETAIL 1/C250.

(X) DEMOLITION KEY NOTES

20 REMOVE EXISTING TREES IN AREAS OF PROPOSED CONSTRUCTION. REFERENCE TREE PRESERVATION AND REMOVAL PLAN.
21 REMOVE EXISTING FENCE AND GATES.
22 NOT USED.
23 NOT USED.
24 REMOVE ALL EXISTING STRUCTURES AND UTILITIES TO R.O.W. LINE. HOLD FOR DIRECTION ON STRUCTURE REMOVAL.
25 NOT USED.
26 NOT USED.
27 NOT USED.
28 UNDER SEPARATE WASHINGTON COUNTY PERMIT REMOVE EXISTING CONCRETE DRIVEWAYS.
29 WELL TO BE DECOMMISSIONED BY PGE IN ACCORDANCE WITH OREGON DEQ GUIDELINES PRIOR TO CONSTRUCTION.

[X] PROTECTION KEY NOTES

40 SAVE AND PROTECT EXISTING WETLAND WITHIN 25' VEGETATED CORRIDOR.
41 SAVE AND PROTECT EXISTING PROPERTY.
42 SAVE AND PROTECT EXITING TILE DRAIN LINE. CONTACT KPFF IF TILE DRAIN LINE IS INCIDENTALLY EXPOSED OR DAMAGED.
43 SAVE AND PROTECT EXISTING CULVERTS
44 SAVE AND PROTECT EXISTING TREES – REFERENCE TREE PRESERVATION AND REMOVAL PLAN
45 SAVE AND PROTECT EXISTING CURB RAMPS.
46 SAVE AND PROTECT EXISTING SIGNAL POLE AND ALL ASSOCIATED SIGNAL/PULL/JUNCTION BOXES.
47 SAVE AND PROTECT STREAM WITHIN 50' VEGETATED BUFFER
48 SAVE AND PROTECT EXISTING TILE DRAIN LINE

SHEET LEGEND

PROPERTY LINE
REMOVE ALL STRUCTURES AND UTILITIES
EXISTING GRADE CONTOUR
WORK LIMITS

SCALE 1 INCH = 100 FEET
100 0 100 200

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05/31/19
REGISTERED PROFESSIONAL ENGINEER
69429
DIGITALLY SIGNED
OREGON
JUL 9, 2002
MARK G. REULAND
EXPIRATION DATE: 12/31/20

PORTLAND GENERAL ELECTRIC INTEGRATED OPERATIONS CENTER

PORTLAND GENERAL ELECTRIC
12150 SW TUALATIN-SHERWOOD ROAD
TUALATIN, OR 97062

EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

REVISIONS

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DEMOLITION PLAN

MG C250

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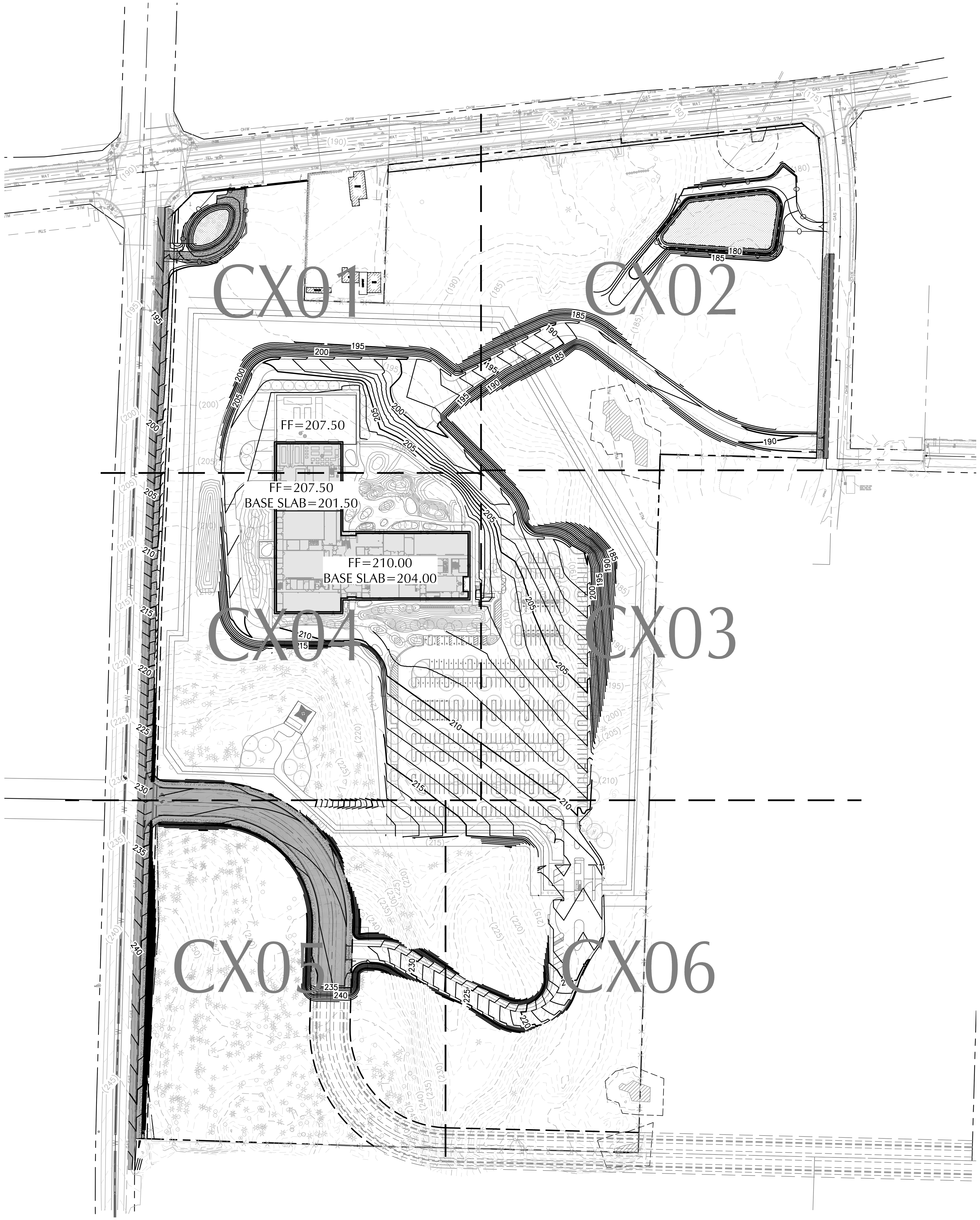

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OVERALL GRADING PLAN

MG C400

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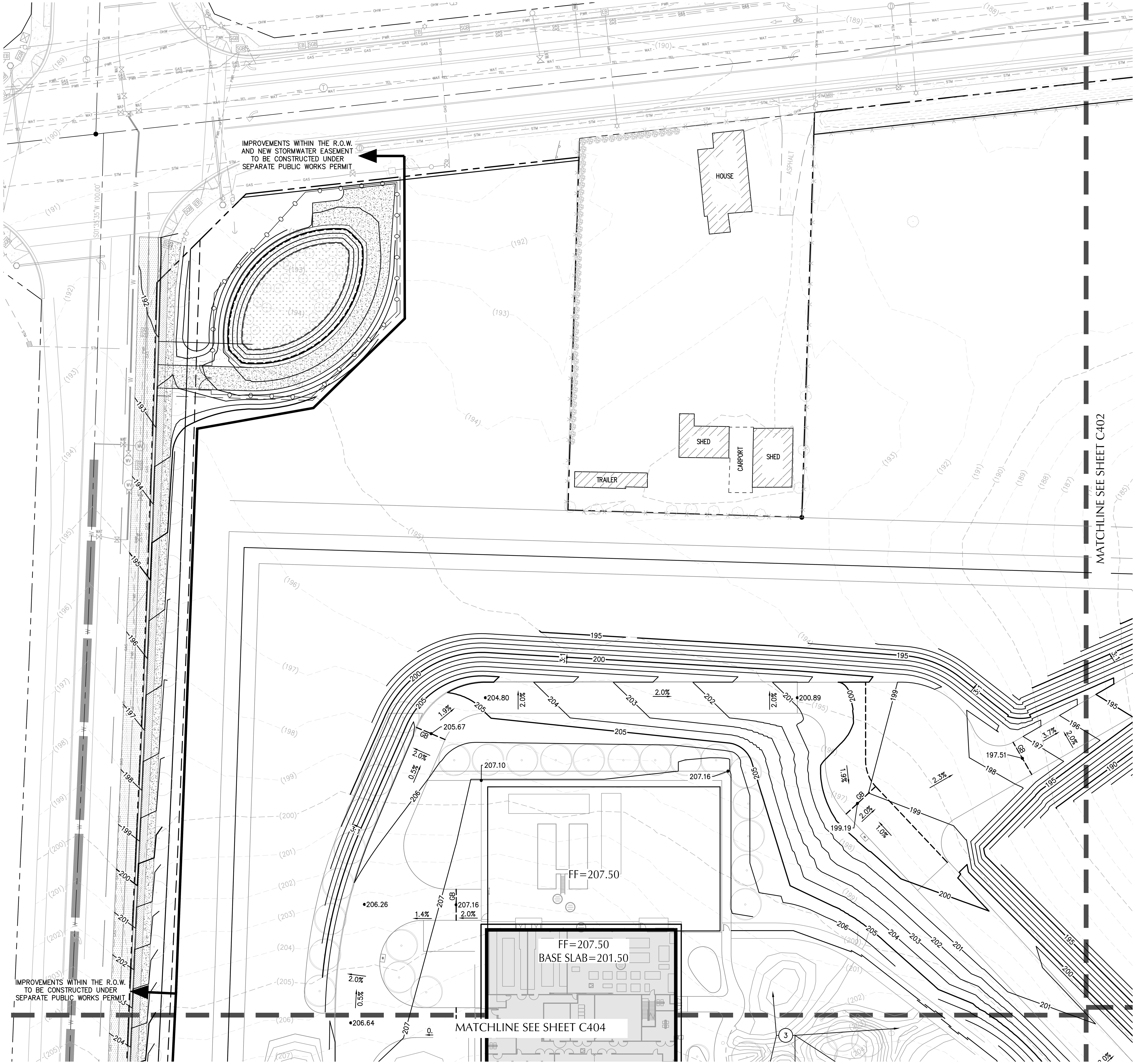

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SHEET LEGEND

(arrow)	DRAINAGE FLOW DIRECTION
GB	GRADE BREAK
(189)	EXISTING CONTOUR MINOR (1 FT. INTERVAL)
(190)	EXISTING CONTOUR MAJOR (5 FT. INTERVAL)
189	PROPOSED CONTOUR MINOR (1 FT. INTERVAL)
190	PROPOSED CONTOUR MAJOR (5 FT. INTERVAL)
FF	FINISHED FLOOR ELEVATION

GRADING LABEL LEGEND

CALLOUT	DESCRIPTION
X.X%	PROPOSED SLOPE AND DIRECTION (DOWNHILL) – PERCENT – SHOWN FOR REFERENCE ONLY
X:1	PROPOSED SLOPE AND DIRECTION (DOWNHILL) – RUN:RISE – SHOWN FOR REFERENCE ONLY
(±X.X%)	EXISTING SLOPE
GB	GRADE BREAK
(XX.X±)	MATCH EXISTING ELEVATION
XX.XX XX	SPOT ELEVATION; DESCRIPTION LISTED BELOW

G — GUTTER
RIM — RIM OF STRUCTURE
TC — TOP OF CURB

NOTE: TOP OF CURB IS 6" ABOVE GUTTER UNLESS NOTED OTHERWISE

(X) KEY NOTES

NOTE	DESCRIPTION
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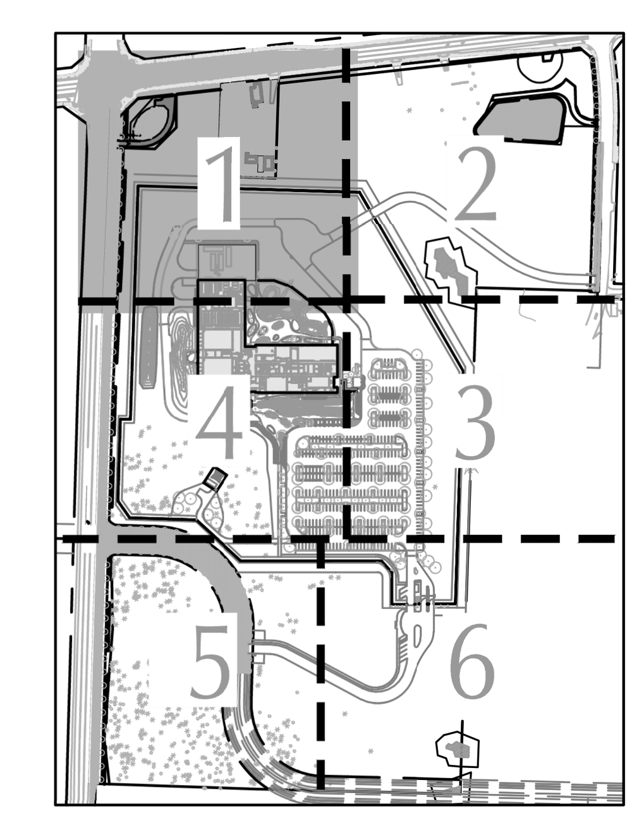

KEY MAP

SCALE 1 INCH = 30 FEET
30 0 30 60

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EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

REVISIONS

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GRADING PLAN

MG C401

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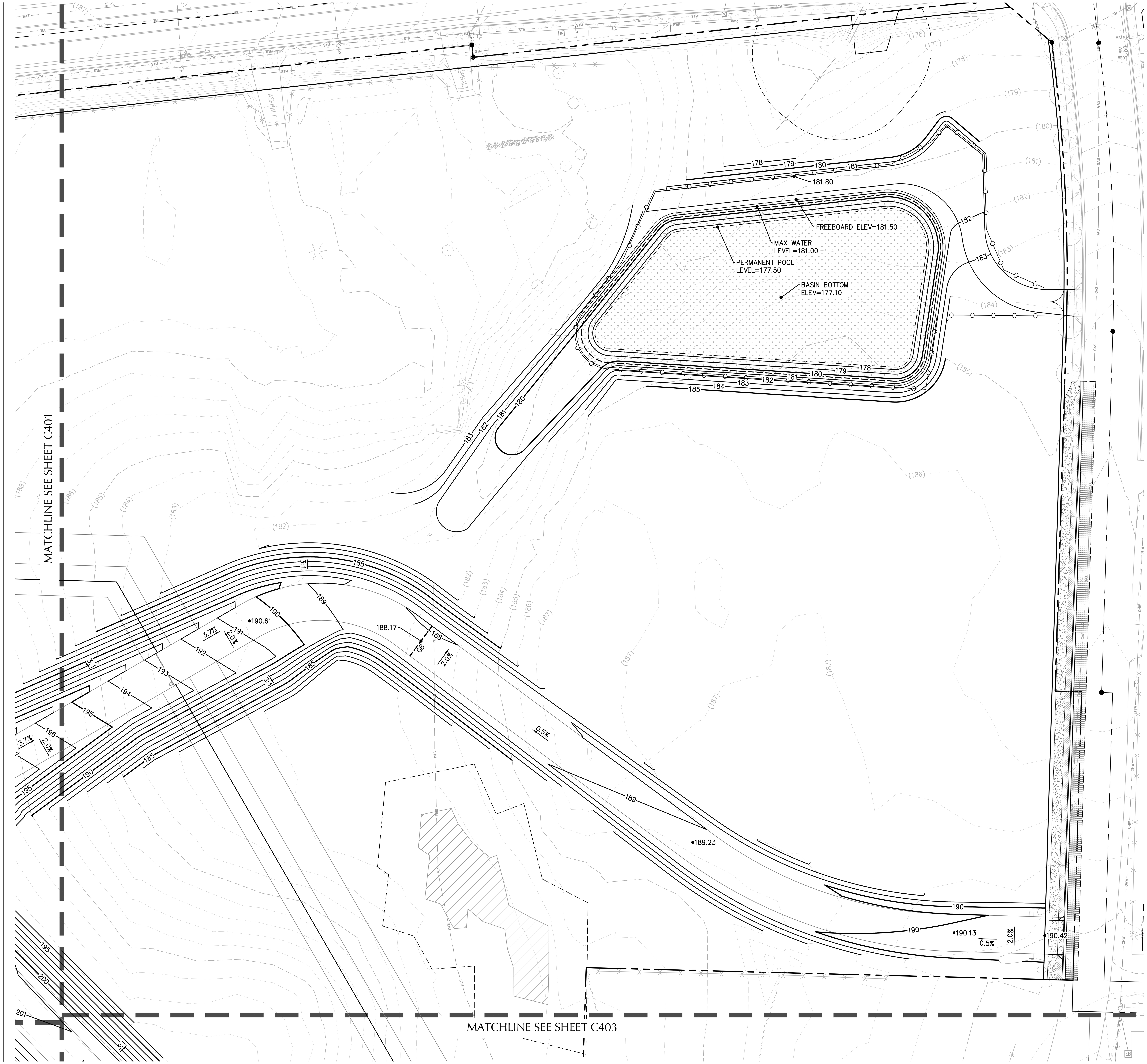

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SHEET LEGEND

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GB	GRADE BREAK
(189)	EXISTING CONTOUR MINOR (1 FT. INTERVAL)
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DESCRIPTION LISTED BELOW

XX.XX XX

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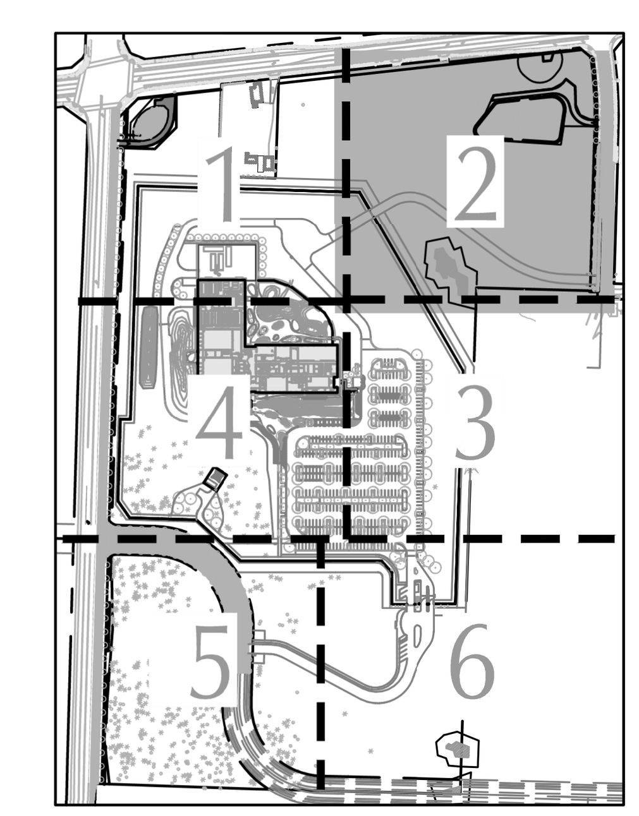

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EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

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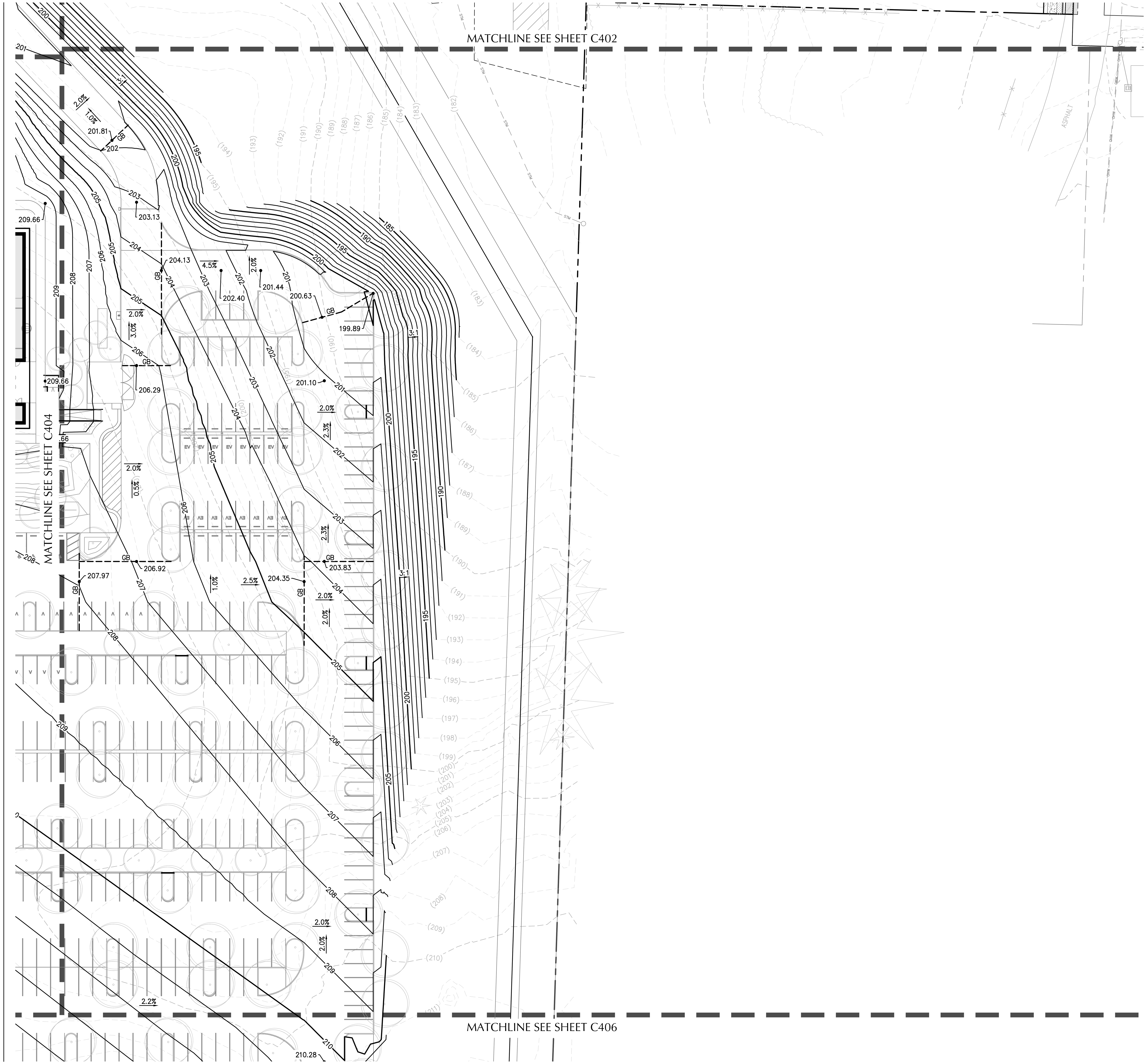
GRADING PLAN

MG C402



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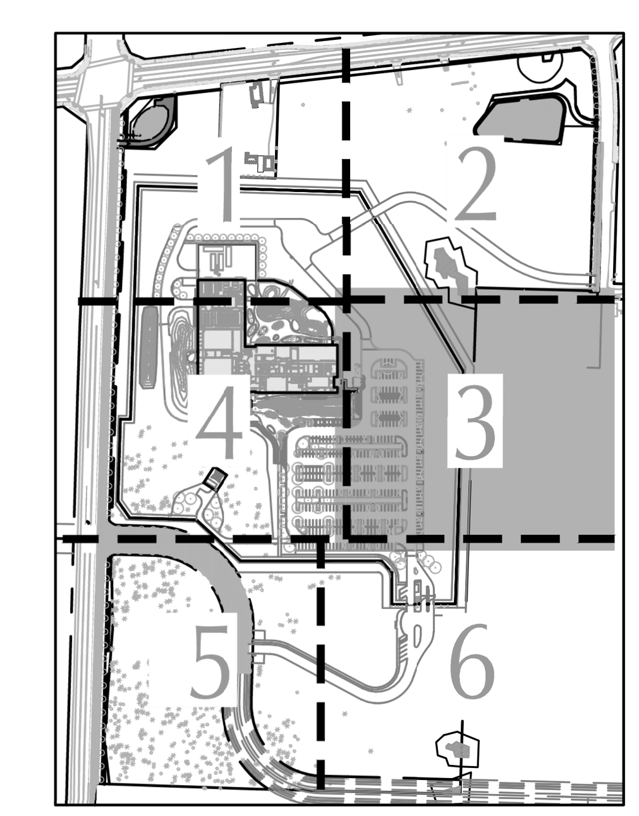

KEY MAP

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GRADING PLAN

MG C403

EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

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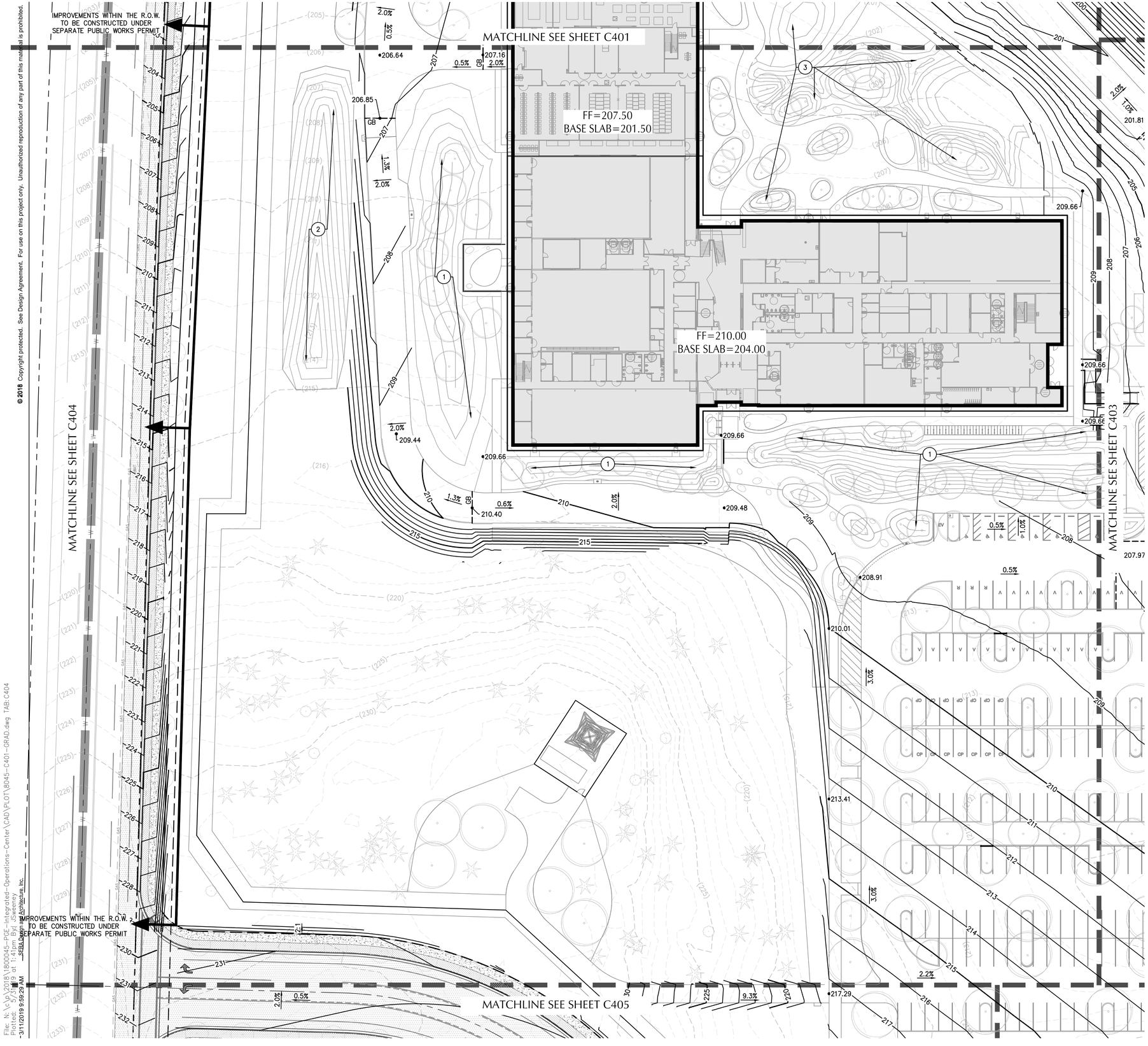

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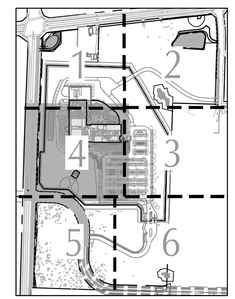

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GRADING PLAN

MG C404

EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

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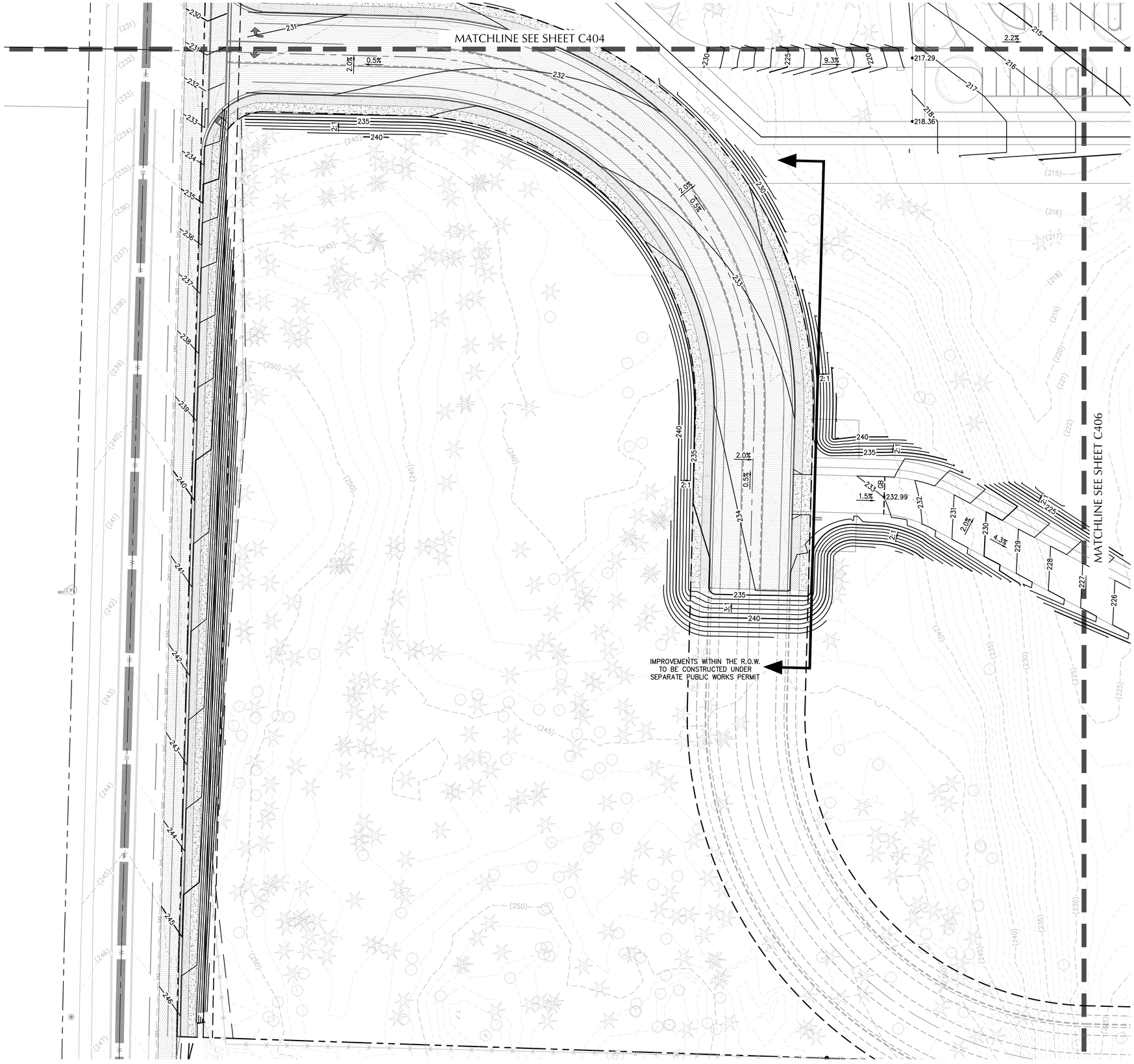

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KEY NOTES

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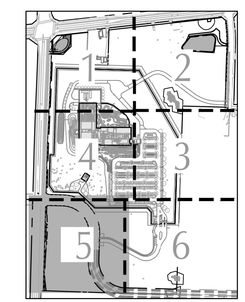
1	LANDSCAPE BERMS AND SWALES ADJACENT TO BUILDING ARE SHOWN FOR REFERENCE ONLY IN THESE MASS GRADING PLANS. FINAL GRADING PLANS WILL INCLUDE DETAILED LANDSCAPE GRADING.
2	LANDSCAPE BERM SHOWN FOR REFERENCE ONLY IN THESE MASS GRADING PLANS. FINAL GRADING PLANS WILL INCLUDE DETAILED LANDSCAPE GRADING.
3	LANDSCAPE BERMS, SWALES, AND GRADING IN THE COURTYARD ARE SHOWN FOR REFERENCE ONLY IN THESE MASS GRADING PLANS. FINAL GRADING PLANS WILL INCLUDE DETAILED LANDSCAPE GRADING.



KEY MAP

SCALE 1 INCH = 30 FEET
30 0 30 60

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05/31/19
REGISTERED PROFESSIONAL ENGINEER
69429
OREGON
JULY 9, 2002
MARK G. REULAND
EXPIRATION DATE: 12/31/20

PORTLAND GENERAL ELECTRIC INTEGRATED OPERATIONS CENTER

PORTLAND GENERAL ELECTRIC
12160 SW TUALATIN-SHERWOOD ROAD
TUALATIN, OR 97062

REVISIONS

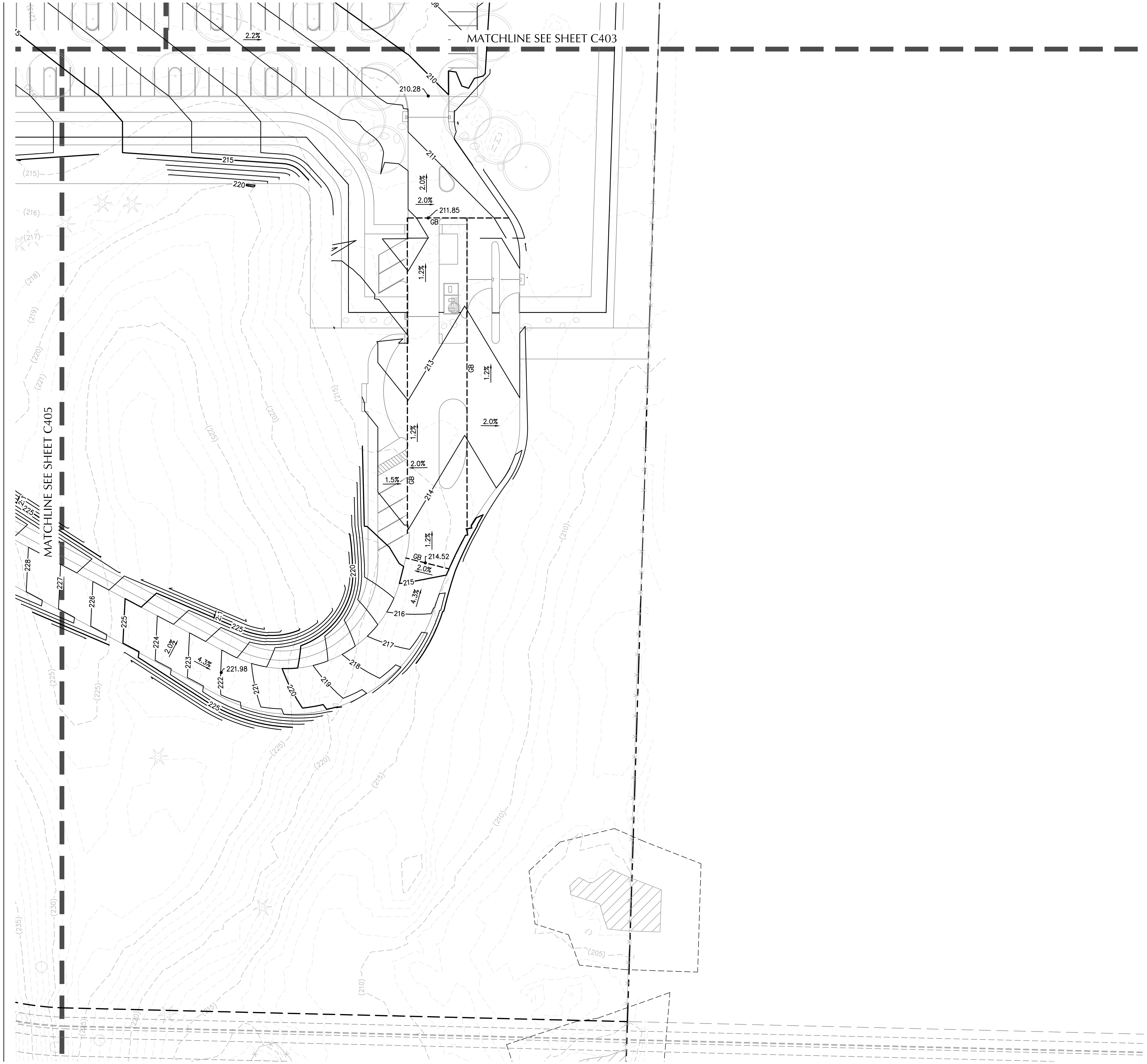
CHECKED BY: MR
ISSUE DATE: 3 JUNE 2019
PROJECT NO: P18-003

GRADING PLAN

MG C405

EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

File: N:\Projects\2018\1800045-PGE-Integrated-Operations-Center\CAD\PLOT\8045-C401-GRAD.dwg TAB:C405
Print date: 3/11/2019 9:59:20 AM
Plotted by: SERA Design and Architecture, Inc.



SHEET NOTES

1. SLOPES PROVIDED ON SLOPE ARROW ARE FOR REFERENCE ONLY.
2. LANDINGS ON ACCESSIBLE ROUTES SHALL NOT EXCEED 2% IN ANY DIRECTION.
3. ALL ACCESSIBLE ROUTES SHALL COMPLY WITH CURRENT ADA ACCESSIBILITY GUIDELINES FOR BUILDING AND FACILITIES (ADAAG).
4. GRADING IN PUBLIC RIGHT-OF-WAY IS SHOWN FOR REFERENCE. ALL WORK IN RIGHT-OF-WAY SHALL BE PER PUBLIC WORKS PERMIT.
5. ACCESSIBLE ROUTE FROM PARKING LOT TO BLAKE STREET SHALL BE CONSTRUCTED IN ACCORDANCE WITH ADA REQUIREMENTS, INCLUDING: RUNNING SLOPE SHALL BE LESS THAN 1:20.

SHEET LEGEND

(arrow)	DRAINAGE FLOW DIRECTION
GB	GRADE BREAK
(189)	EXISTING CONTOUR MINOR (1 FT. INTERVAL)
(190)	EXISTING CONTOUR MAJOR (5 FT. INTERVAL)
189	PROPOSED CONTOUR MINOR (1 FT. INTERVAL)
190	PROPOSED CONTOUR MAJOR (5 FT. INTERVAL)
FF	FINISHED FLOOR ELEVATION

GRADING LABEL LEGEND

CALLOUT	DESCRIPTION
X.X%	PROPOSED SLOPE AND DIRECTION (DOWNHILL) – PERCENT – SHOWN FOR REFERENCE ONLY
X:1	PROPOSED SLOPE AND DIRECTION (DOWNHILL) – RUN:RISE – SHOWN FOR REFERENCE ONLY
(±X.X%)	EXISTING SLOPE
GB	GRADE BREAK
(XX.X±)	MATCH EXISTING ELEVATION

SPOT ELEVATION
DESCRIPTION LISTED BELOW
XX.XX XX

G GUTTER
RIM RIM OF STRUCTURE
TC TOP OF CURB

NOTE: TOP OF CURB IS 6" ABOVE GUTTER UNLESS NOTED OTHERWISE

(X) KEY NOTES

NOTE	DESCRIPTION
1	LANDSCAPE BERMS AND SWALES ADJACENT TO BUILDING ARE SHOWN FOR REFERENCE ONLY IN THESE MASS GRADING PLANS. FINAL GRADING PLANS WILL INCLUDE DETAILED LANDSCAPE GRADING.
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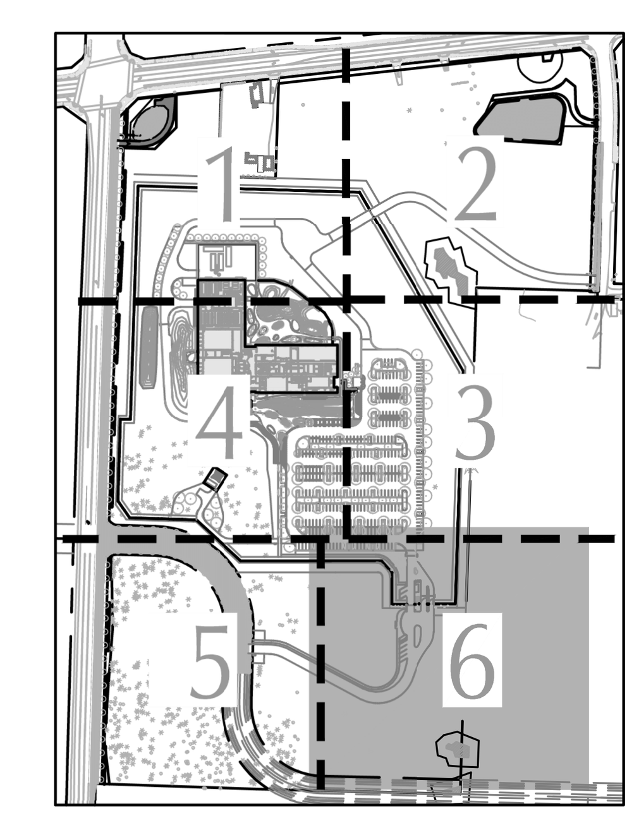

KEY MAP

SCALE 1 INCH = 30 FEET
30 0 30 60

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REGISTERED PROFESSIONAL ENGINEER 69429 OREGON JUL. 9, 2002 MARK G. REULAND
DIGITALLY SIGNED
05/31/19
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PORTLAND GENERAL ELECTRIC INTEGRATED OPERATIONS CENTER

PORTLAND GENERAL ELECTRIC
12150 SW TUALATIN-SHERWOOD ROAD
TUALATIN, OR 97062

REVISIONS

CHECKED BY: MR
ISSUE DATE: 3 JUNE 2019
PROJECT NO: P18-003

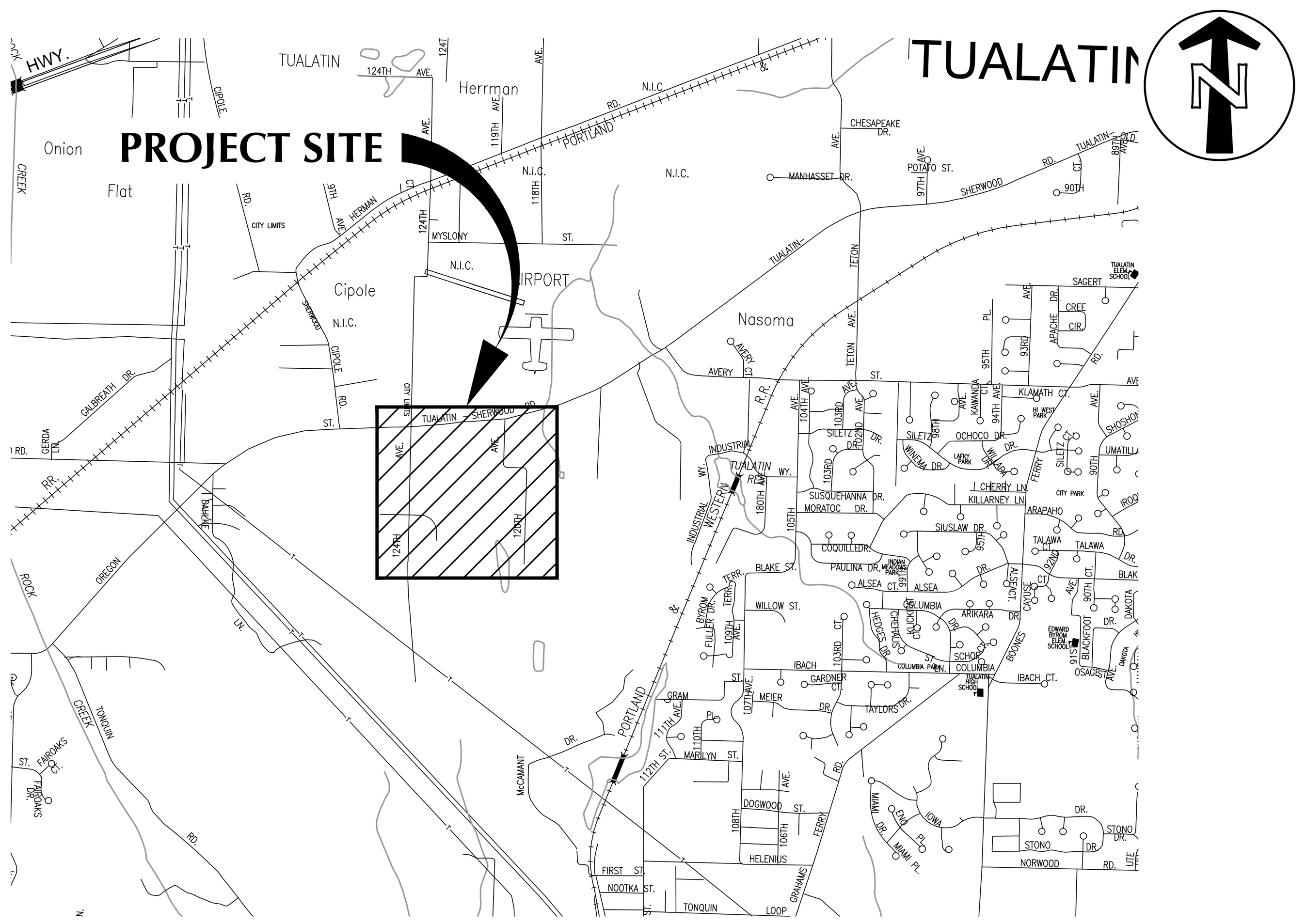
GRADING PLAN

MG C406

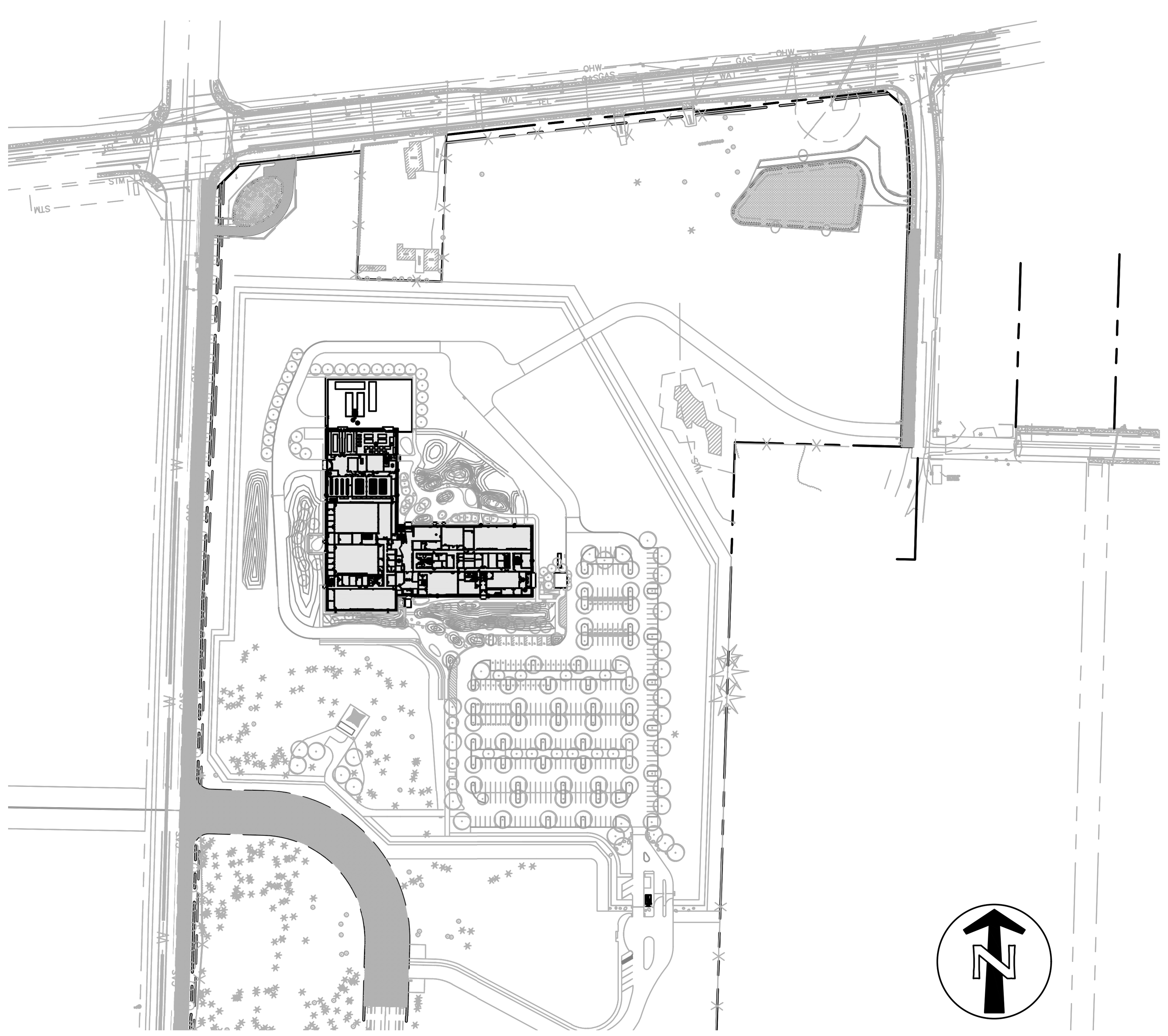
EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

EROSION AND SEDIMENT CONTROL PLANS

THE PERMITTEE IS REQUIRED TO MEET ALL THE CONDITIONS OF THE 1200-C PERMIT. THIS ESCP AND GENERAL CONDITIONS HAVE BEEN DEVELOPED TO FACILITATE COMPLIANCE WITH THE 1200-C PERMIT REQUIREMENTS. IN CASES OF DISCREPANCIES OR OMISSIONS, THE 1200-C PERMIT REQUIREMENTS SUPERCEDE REQUIREMENTS OF THIS PLAN.



VICINITY MAP
SCALE: NTS



SITE MAP
SCALE: 1" = 200'

NARRATIVE DESCRIPTIONS

EXISTING SITE CONDITIONS

THE EXISTING SITE CONSISTS PREDOMINANTLY OF A GRASSY FIELD EXCEPT FOR THE SOUTHERN PORTION, WHICH CONSISTS OF THICK SHRUBS AND SMALL TREES. THERE IS A SINGLE RESIDENCE AND BARN STRUCTURES ON THE NORTHEAST CORNER OF THE SITE WHICH WILL BE DEMOLISHED.

DEVELOPED CONDITIONS

THE PROPOSED DEVELOPMENT INCLUDES THE CONSTRUCTION OF TWO NEW BUILDINGS, A SITE ROAD LOOP, SURFACE PARKING FACILITIES, A MECHANICAL EQUIPMENT YARD, AND AN APPROXIMATELY 150-FT TALL COMMUNICATION TOWER.

NATURE OF CONSTRUCTION ACTIVITY AND ESTIMATED TIME TABLE

- DEMOLITION
  (MAR. 2 2020 – DEC. 31 2020)
- CLEARING
  (AUG. 15 2019 – NOV. 15 2019)
- MASS GRADING
  (AUG. 15 2019 – DEC. 15 2019)
- UTILITY INSTALLATION
  (MAR. 2 2020 – JUL. 15 2020)
- STREET CONSTRUCTION
  (MAR. 2 2020 – SEPT. 15 2020)
- FINAL STABILIZATION
  (JUN. 15 2021)

TOTAL SITE AREA
= 1,904,878 SF = 43.7 ACRES

TOTAL DISTURBED AREA
= 1,294,000 SF = 29.7 ACRES

SITE SOIL CLASSIFICATION:

SITE CONSISTS OF VARIOUS LOAM SOILS, THAT ARE CLASSIFIED AS HYDROLOGIC SOIL GROUPS B-D.

C/D ALOHA SILT LOAM

B BRIEDWELL STONY SILT LOAM
0 TO 20 PERCENT SLOPES

B HILLSBORO LOAM
3 TO 7 PERCENT SLOPES

C QUATAMA LOAM
0 TO 12 PERCENT SLOPES

C/D HUBERLY SILT LOAM
0 TO 3 PERCENT SLOPES

RECEIVING WATER BODIES:

THE ENTIRE PROJECT IS LOCATED WITHIN THE HEDGES CREEK BASIN AREA AND DISCHARGES TO HEDGES CREEK, FLOWS TO THE TUALATIN RIVER AND WHICH OUTFALLS INTO THE WILLAMETTE RIVER.

OWNER

PORTLAND GENERAL ELECTRIC
121 SW SALMON ST
PORTLAND, OREGON 97204
PHONE: 800-524-8818

ARCHITECT

SERA ARCHITECTS
CONTACT: MARGO RETTIG
338 NW 5TH AVE
PORTLAND, OREGON 97209
PHONE: 503-445-7372

ENGINEER

KPFF CONSULTING ENGINEERS
CONTACT: MARK REULAND, PE
111 SW FIFTH AVENUE, SUITE 2400
PORTLAND, OREGON 97204
PHONE: 503-227-3251

CONTRACTOR

LEASE CRUTCHER LEWIS
550 SW 12TH AVE
PORTLAND, OREGON 97205
PHONE: 503-223-0500

PROJECT LOCATION

SOUTHEAST OF THE INTERSECTION OF SW TUALATIN SHERWOOD ROAD AND SW 124TH AVENUE.
12150 SW TUALATIN SHERWOOD ROAD, TUALATIN, OREGON

LATITUDE = 45°22'04" N
LONGITUDE = 122°48'09" W
Coordinates from Google Earth

PROJECT DESCRIPTION

TAXLOTS 2S-1-27C 701
2S-1-27C-500

INSPECTION FREQUENCY

SITE CONDITION	MINIMUM FREQUENCY
1. ACTIVE PERIOD	DAILY WHEN STORMWATER RUNOFF, INCLUDING RUNOFF FROM SNOWMELT, IS OCCURRING. AT LEAST ONCE EVERY 14 DAYS.
2. PRIOR TO THE SITE BECOMING INACTIVE OR IN ANTICIPATION OF SITE INACCESSIBILITY.	ONCE TO ENSURE TAHT EROSION AND SEDIMENT CONTROL MEASURES ARE IN WORKING ORDER. ANY NECESSARY MAINTENANCE AND REPAIR MUST BE MADE PRIOR TO LEAVING THE SITE.
3. INACTIVE PERIODS GREATER THAN SEVEN (7) CONSECUTIVE CALENDAR DAYS.	ONCE EVERY MONTH
4. PERIODS DURING WHICH THE SITE IS INACCESSIBLE DUE TO INCLEMENT WEATHER.	IF PRACTICAL, INSPECTIONS MUST OCCUR DAILY AT A RELEVANT AND ACCESSIBLE DISCHARGE POINT OR DOWNSTREAM LOCATION.
5. PERIODS DURING WHICH DISCHARGE IS UNLIKELY DUE TO FROZEN CONDITIONS.	MONTHLY, RESUME MONITORING IMMEDIATELY UPON MELT, OR WHEN WEATHER CONDITIONS MAKE DISCHARGES LIKELY.

* HOLD A PRE-CONSTRUCTION MEETING OF PROJECT CONSTRUCTION PERSONNEL THAT INCLUDES THE INSPECTOR. TO DISCUSS EROSION AND SEDIMENT CONTROL MEASURES AND CONSTRUCTION LIMITS
* ALL INSPECTIONS MUST BE MADE IN ACCORDANCE WITH DEQ 1200-C PERMIT REQUIREMENTS.
* INSPECTION LOGS MUST BE KEPT IN ACCORDANCE WITH DEQ'S 1200-C PERMIT REQUIREMENTS.
* RETAIN A COPY OF THE ESCP AND ALL REVISIONS ON SITE AND MAKE IT AVAILABLE ON REQUEST TO DEQ, AGENT, OR THE LOCAL MUNICIPALITY. DURING INACTIVE PERIODS OF GREATER THAN SEVEN (7) CONSECUTIVE CALENDAR DAYS, RETAIN THE ESCP AT THE CONSTRUCTION SITE OR AT ANOTHER LOCATION.

RATIONALE STATEMENT

A COMPREHENSIVE LIST OF AVAILABLE BEST MANAGEMENT PRACTICES (BMP) OPTIONS BASED ON DEQ'S GUIDANCE MANUAL HAS BEEN REVIEWED TO COMPLETE THIS EROSION AND SEDIMENT CONTROL PLAN. SOME OF THE ABOVE LISTED BMP's WERE NOT CHOSEN BECAUSE THEY WERE DETERMINED TO NOT EFFECTIVELY MANAGE EROSION PREVENTION AND SEDIMENT CONTROL FOR THIS PROJECT BASED ON SPECIFIC SITE CONDITIONS, INCLUDING SOIL CONDITIONS TOPOGRAPHIC CONSTRAINTS, ACCESSIBILITY TO THE SITE, AND OTHER RELATED CONDITIONS. AS THE PROJECT PROGRESSES AND THERE IS A NEED TO REVISE THE ESC PLAN, AN ACTION PLAN WILL BE SUBMITTED.

INITIAL

LOCAL AGENCY-SPECIFIC EROSION CONTROL NOTES:

1. IF VEGETATIVE SEED MIXES ARE SPECIFIED, SEEDING MUST TAKE PLACE NO LATER THAT SEPTEMBER 1; THE TYPE AND PERCENTAGES OF SEED IN THE MIX MUST BE IDENTIFIED ON THE PLANS.
2. ALL PUMPING OF SEDIMENT LADEN WATER SHALL BE DISCHARGED OVER AN UNDISTURBED, PREFERABLY VEGETATED AREA, AND THROUGH A SEDIMENT CONTROL BMP I.E. (FILTER BAG).
3. ALL EXPOSED SOILS MUST BE COVERED DURING THE WET WEATHER PERIOD, OCTOBER 01 – MAY 31.

ATTENTION EXCAVATORS

OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-001-0090. YOU MAY OBTAIN COPIES OF THESE RULES FROM THE CENTER BY CALLING 503-232-1987. IF YOU HAVE ANY QUESTIONS ABOUT THE RULES, YOU MAY CONTACT THE CENTER. YOU MUST NOTIFY THE CENTER AT LEAST TWO BUSINESS DAYS, BEFORE COMMENCING AN EXCAVATION. CALL 503-246-6699.

PERMITEE'S SITE INSPECTOR

NAME: PAUL RIGHTER
COMPANY/AGENCY: LEASE CRUTCHER LEWS
PHONE: 503-509-9890
FAX:
E-MAIL: PAUL.RIGHTER@LEWISBUILDS.COM
DESCRIPTION OF EXPERIENCE:

CESCL CERTIFICATION # 39154
ISSUED: 5/19/2016
EXPIRES: 5/19/2019 (IN THE PROCESS OF RENEWING)

EROSION AND SEDIMENT GENERAL GRADING NOTES

1. CONTRACTOR TO IMPLEMENT THE APPROPRIATE EROSION CONTROL MEASURES DURING GRADING INCLUDING:
   A. COVER EXPOSED SOILS WITH TEMPORARY SEEDING PER THE LANDSCAPE SEED MIX, JUTE MATTING.
   (OR APPROVED EQUAL)
   B. COVER ANY STOCK PILES.
2. CONSTRUCTION ENTRANCES SHALL BE ADJUSTED AS NECESSARY WITH CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES INCLUDING, BUT NOT LIMITED TO, STREET SWEEPING, AND VACUUMING, MAY BE REQUIRED TO INSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.
3. FUEL STORAGE AND FUELING ARE NOT ALLOWED.

EROSION AND SEDIMENT CONTROL BMP IMPLEMENTATION

1. ALL BASE ESC MEASURES (INLET PROTECTION, PERIMETER SEDIMENT CONTROL, GRAVEL CONSTRUCTION ENTRANCES, ETC.) MUST BE IN PLACE, FUNCTIONAL, AND APPROVED IN AN INITIAL INSPECTION, PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
2. LONG TERM SLOPE STABILIZATION MEASURES "INCLUDING MATTING" SHALL BE IN PLACE OVER ALL EXPOSED SOILS BY OCTOBER 1.
3. INLET PROTECTION SHALL BE IN-PLACE IMMEDIATELY FOLLOWING PAVING ACTIVITIES.
4. ALL ESC MEASURES DOWNSLOPE MUST BE IN PLACE PRIOR TO GRADING ACTIVITIES. INTEGRATE EROSION CONTROL MEASURES TO UPSLOPE AREAS AS PROJECT PROGRESSES.

SHEET INDEX

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EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

REVISIONS

CHECKED BY: MR
ISSUE DATE: 3 JUNE 2019
PROJECT NO: P18-003

EROSION CONTROL COVER SHEET

MG C900

File: N:\c\o\2018\1800045-PGE-Integrated-Operations-Center\CAD\PLOT\8045-C900-EROS.dwg TAB:C900
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3/11/2019 9:59:29 AM
SERA Design and Architecture, Inc.

DEQ ESCP NOTES

1. HOLD A PRE–CONSTRUCTION MEETING OF PROJECT CONSTRUCTION PERSONNEL THAT INCLUDES THE INSPECTOR TO DISCUSS EROSION AND SEDIMENT CONTROL MEASURES AND CONSTRUCTION LIMITS. (SCHEDULE A.8.C.I.(3))
2. ALL INSPECTIONS MUST BE MADE IN ACCORDANCE WITH DEQ 1200–C PERMIT REQUIREMENTS. (SCHEDULE A.12.B AND SCHEDULE B.1)
3. INSPECTION LOGS MUST BE KEPT IN ACCORDANCE WITH DEQ'S 1200–C PERMIT REQUIREMENTS. (SCHEDULE B.1.C AND B.2)
4. RETAIN A COPY OF THE ESCP AND ALL REVISIONS ON SITE AND MAKE IT AVAILABLE ON REQUEST TO DEQ, AGENT, OR THE LOCAL MUNICIPALITY. DURING INACTIVE PERIODS OF GREATER THAN SEVEN (7) CONSECUTIVE CALENDAR DAYS, THE ABOVE RECORDS MUST BE RETAINED BY THE PERMIT REGISTRANT BUT DO NOT NEED TO BE AT THE CONSTRUCTION SITE. (SCHEDULE B.2.C)
5. ALL PERMIT REGISTRANTS MUST IMPLEMENT THE ESCP. FAILURE TO IMPLEMENT ANY OF THE CONTROL MEASURES OR PRACTICES DESCRIBED IN THE ESCP IS A VIOLATION OF THE PERMIT. (SCHEDULE A 8.A)
6. THE ESCP MUST BE ACCURATE AND REFLECT SITE CONDITIONS. (SCHEDULE A.12.C.I)
7. SUBMISSION OF ALL ESCP REVISIONS IS NOT REQUIRED. SUBMITTAL OF THE ESCP REVISIONS IS ONLY UNDER SPECIFIC CONDITIONS. SUBMIT ALL NECESSARY REVISION TO DEQ OR AGENT WITHIN 10 DAYS. (SCHEDULE A.12.C.IV. AND V)
8. PHASE CLEARING AND GRADING TO THE MAXIMUM EXTENT PRACTICAL TO PREVENT EXPOSED INACTIVE AREAS FROM BECOMING A SOURCE OF EROSION. (SCHEDULE A.7.A.III)
9. IDENTIFY, MARK, AND PROTECT (BY CONSTRUCTION FENCING OR OTHER MEANS) CRITICAL RIPARIAN AREAS AND VEGETATION INCLUDING IMPORTANT TREES AND ASSOCIATED ROOTING ZONES, AND VEGETATION AREAS TO BE PRESERVED. IDENTIFY VEGETATIVE BUFFER ZONES BETWEEN THE SITE AND SENSITIVE AREAS (E.G., WETLANDS), AND OTHER AREAS TO BE PRESERVED, ESPECIALLY IN PERIMETER AREAS. (SCHEDULE A.8.C.I.(1) AND (2))
10. PRESERVE EXISTING VEGETATION WHEN PRACTICAL AND RE–VEGETATE OPEN AREAS. RE–VEGETATE OPEN AREAS WHEN PRACTICABLE BEFORE AND AFTER GRADING OR CONSTRUCTION. IDENTIFY THE TYPE OF VEGETATIVE SEED MIX USED. (SCHEDULE A.7.A.V)
11. MAINTAIN AND DELINEATE ANY EXISTING NATURAL BUFFER WITHIN THE 50–FEET OF WATERS OF THE STATE. (SCHEDULE A.7.B.I.AND (2(A)(B))
12. INSTALL PERIMETER SEDIMENT CONTROL, INCLUDING STORM DRAIN INLET PROTECTION AS WELL AS ALL SEDIMENT BASINS, TRAPS, AND BARRIERS PRIOR TO LAND DISTURBANCE. (SCHEDULE A.8.C.I.(5))
13. CONTROL BOTH PEAK FLOW RATES AND TOTAL STORMWATER VOLUME, TO MINIMIZE EROSION AT OUTLETS AND DOWNSTREAM CHANNELS AND STREAMBANKS. (SCHEDULE A.7.C)
14. CONTROL SEDIMENT AS NEEDED ALONG THE SITE PERIMETER AND AT ALL OPERATIONAL INTERNAL STORM DRAIN INLETS AT ALL TIMES DURING CONSTRUCTION, BOTH INTERNALLY AND AT THE SITE BOUNDARY. (SCHEDULE A.7.D.I)
15. ESTABLISH CONCRETE TRUCK AND OTHER CONCRETE EQUIPMENT WASHOUT AREAS BEFORE BEGINNING CONCRETE WORK. (SCHEDULE A.8.C.I.(6))
16. APPLY TEMPORARY AND/OR PERMANENT SOIL STABILIZATION MEASURES IMMEDIATELY ON ALL DISTURBED AREAS AS GRADING PROGRESSES. TEMPORARY OR PERMANENT STABILIZATIONS MEASURES ARE NOT REQUIRED FOR AREAS THAT ARE INTENDED TO BE LEFT UNVEGETATED, SUCH AS DIRT ACCESS ROADS OR UTILITY POLE PADS.(SCHEDULE A.8.C.II.(3))
17. ESTABLISH MATERIAL AND WASTE STORAGE AREAS, AND OTHER NON–STORMWATER CONTROLS. (SCHEDULE A.8.C.I.(7))
18. PREVENT TRACKING OF SEDIMENT ONTO PUBLIC OR PRIVATE ROADS USING BMPS SUCH AS: CONSTRUCTION ENTRANCE, GRAVELED (OR PAVED) EXITS AND PARKING AREAS, GRAVEL ALL UNPAVED ROADS LOCATED ONSITE, OR USE AN EXIT TIRE WASH. THESE BMPS MUST BE IN PLACE PRIOR TO LANDDISTURBING ACTIVITIES. (SCHEDULE A 7.D.II AND A.8.C.I(4))
19. WHEN TRUCKING SATURATED SOILS FROM THE SITE, EITHER USE WATER–TIGHT TRUCKS OR DRAIN LOADS ON SITE. (SCHEDULE A.7.D.II.(5))
20. CONTROL PROHIBITED DISCHARGES FROM LEAVING THE CONSTRUCTION SITE, I.E., CONCRETE WASH–OUT, WASTEWATER FROM CLEANOUT OF STUCCO, PAINT AND CURING COMPOUNDS. (SCHEDULE A.6)
21. USE BMPS TO PREVENT OR MINIMIZE STORMWATER EXPOSURE TO POLLUTANTS FROM SPILLS; VEHICLE AND EQUIPMENT FUELING, MAINTENANCE, AND STORAGE; OTHER CLEANING AND MAINTENANCE ACTIVITIES; AND WASTE HANDLING ACTIVITIES. THESE POLLUTANTS INCLUDE FUEL, HYDRAULIC FLUID, AND OTHER OILS FROM VEHICLES AND MACHINERY, AS WELL AS DEBRIS, FERTILIZER, PESTICIDES AND HERBICIDES, PAINTS, SOLVENTS, CURING COMPOUNDS AND ADHESIVES FROM CONSTRUCTION OPERATIONS. (SCHEDULE A.7.E.I.(2))
22. IMPLEMENT THE FOLLOWING BMPS WHEN APPLICABLE: WRITTEN SPILL PREVENTION AND RESPONSE PROCEDURES, EMPLOYEE TRAINING ON SPILL PREVENTION AND PROPER DISPOSAL PROCEDURES, SPILL KITS IN ALL VEHICLES, REGULAR MAINTENANCE SCHEDULE FOR VEHICLES AND MACHINERY, MATERIAL DELIVERY AND STORAGE CONTROLS, TRAINING AND SIGNAGE, AND COVERED STORAGE AREAS FOR WASTE AND SUPPLIES. (SCHEDULE A. 7.E.III.)
23. USE WATER, SOIL–BINDING AGENT OR OTHER DUST CONTROL TECHNIQUE AS NEEDED TO AVOID WIND–BLOWN SOIL. (SCHEDULE A 7.A.IV)
24. THE APPLICATION RATE OF FERTILIZERS USED TO REESTABLISH VEGETATION MUST FOLLOW MANUFACTURER'S RECOMMENDATIONS TO MINIMIZE NUTRIENT RELEASES TO SURFACE WATERS. EXERCISE CAUTION WHEN USING TIME–RELEASE FERTILIZERS WITHIN ANY WATERWAY RIPARIAN ZONE. (SCHEDULE A.9.B.III)
25. IF AN ACTIVE TREATMENT SYSTEM (FOR EXAMPLE, ELECTRO–COAGULATION, FLOCCULATION, FILTRATION, ETC.) FOR SEDIMENT OR OTHER POLLUTANT REMOVAL IS EMPLOYED, SUBMIT AN OPERATION AND MAINTENANCE PLAN (INCLUDING SYSTEM SCHEMATIC, LOCATION OF SYSTEM, LOCATION OF INLET, LOCATION OF DISCHARGE, DISCHARGE DISPERSION DEVICE DESIGN, AND A SAMPLING PLAN AND FREQUENCY) BEFORE OPERATING THE TREATMENT SYSTEM. OBTAIN PLAN APPROVAL BEFORE OPERATING THE TREATMENT SYSTEM. OPERATE AND MAINTAIN THE TREATMENT SYSTEM ACCORDING TO MANUFACTURER'S SPECIFICATIONS. (SCHEDULE A.9.D)
26. TEMPORARILY STABILIZE SOILS AT THE END OF THE SHIFT BEFORE HOLIDAYS AND WEEKENDS, IF NEEDED. THE REGISTRANT IS RESPONSIBLE FOR ENSURING THAT SOILS ARE STABLE DURING RAIN EVENTS AT ALL TIMES OF THE YEAR. (SCHEDULE A 7.B)
27. AS NEEDED BASED ON WEATHER CONDITIONS, AT THE END OF EACH WORKDAY SOIL STOCKPILES MUST BE STABILIZED OR COVERED, OR OTHER BMPS MUST BE IMPLEMENTED TO PREVENT DISCHARGES TO SURFACE WATERS OR CONVEYANCE SYSTEMS LEADING TO SURFACE WATERS. (SCHEDULE A 7.E.II.(2))
28. CONSTRUCTION ACTIVITIES MUST AVOID OR MINIMIZE EXCAVATION AND BARE GROUND ACTIVITIES DURING WET WEATHER. (SCHEDULE A.7.A.I)
29. SEDIMENT FENCE: REMOVE TRAPPED SEDIMENT BEFORE IT REACHES ONE THIRD OF THE ABOVE GROUND FENCE HEIGHT AND BEFORE FENCE REMOVAL. (SCHEDULE A.9.C.I)
30. OTHER SEDIMENT BARRIERS (SUCH AS BIOBAGS): REMOVE SEDIMENT BEFORE IT REACHES TWO INCHES DEPTH ABOVE GROUND HEIGHT AND BEFORE BMP REMOVAL. (SCHEDULE A.9.C.I)
31. CATCH BASINS: CLEAN BEFORE RETENTION CAPACITY HAS BEEN REDUCED BY FIFTY PERCENT. SEDIMENT BASINS AND SEDIMENT TRAPS: REMOVE TRAPPED SEDIMENTS BEFORE DESIGN CAPACITY HAS BEEN REDUCED BY FIFTY PERCENT AND AT COMPLETION OF PROJECT. (SCHEDULE A.9.C.III & IV)
32. WITHIN 24 HOURS, SIGNIFICANT SEDIMENT THAT HAS LEFT THE CONSTRUCTION SITE, MUST BE REMEDIATED. INVESTIGATE THE CAUSE OF THE SEDIMENT RELEASE AND IMPLEMENT STEPS TO PREVENT A RECURRENCE OF THE DISCHARGE WITHIN THE SAME 24 HOURS. ANY IN–STREAM CLEAN–UP OF SEDIMENT SHALL BE PERFORMED ACCORDING TO THE OREGON DIVISION OF STATE LANDS REQUIRED TIMEFRAME. (SCHEDULE A.9.B.I)
33. THE INTENTIONAL WASHING OF SEDIMENT INTO STORM SEWERS OR DRAINAGE WAYS MUST NOT OCCUR. VACUUMING OR DRY SWEEPING AND MATERIAL PICKUP MUST BE USED TO CLEANUP RELEASED SEDIMENTS. (SCHEDULE A.9.B.II)
34. THE ENTIRE SITE MUST BE TEMPORARILY STABILIZED USING VEGETATION OR A HEAVY MULCH LAYER, TEMPORARY SEEDING, OR OTHER METHOD SHOULD ALL CONSTRUCTION ACTIVITIES CEASE FOR 30 DAYS OR MORE. (SCHEDULE A.7.F.I)
35. 35. PROVIDE TEMPORARY STABILIZATION FOR THAT PORTION OF THE SITE WHERE CONSTRUCTION ACTIVITIES CEASE FOR 14 DAYS OR MORE WITH A COVERING OF BLOWN STRAW AND A TACKIFIER, LOOSE STRAW, OR AN ADEQUATE COVERING OF COMPOST MULCH UNTIL WORK RESUMES ON THAT PORTION OF THE SITE. (SCHEDULE A.7.F.II)
36. DO NOT REMOVE TEMPORARY SEDIMENT CONTROL PRACTICES UNTIL PERMANENT VEGETATION OR OTHER COVER OF EXPOSED AREAS IS ESTABLISHED. ONCE CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED, ALL TEMPORARY EROSION CONTROLS AND RETAINED SOILS MUST BE REMOVED AND DISPOSED OF PROPERLY, UNLESS DOING SO CONFLICTS WITH LOCAL REQUIREMENTS. (SCHEDULE A.8.C.III(1) AND D.3.C.II AND III)

BMP MATRTIX FOR CONSTRUCTION PHASES

REFER TO DEQ GUIDANCE MANUAL FOR A COMPREHENSIVE LIST OF AVAILABLE BMP'S

	CLEARING	MASS GRADING	UTILITY INSTALL.	STREET CONSTR.	FINAL STABILIZATION	WET WEATHER (10.1–5.31)
BIOBAGS		X	X	X		X
BIO SWALES		X	X	X		X
CHECK DAMS			X			X
COMPOST BERMS						
COMPOST BLANKETS						
COMPOST SOCKS						
CONCRETE TRUCK WASHOUT			X			X
CONSTRUCTION ENTRANCE	**X	X	X			X
DEWATERING			X			***X
DRAINAGE SWALES		X	X		X	X
DUST CONTROL	X	X	X		X	X
EARTH DIKES						
ENERGY DISSIPATERS			X		X	X
EROSION CONTROL BLANKETS & MATS (JUTE MATTING)		X	X			X
HYDROSEEDING					X	
INLET PROTECTION	**X	X	X	X	X	X
MULCHES					X	
MYCORRHIZAE / BIOFERTILIZERS						
NATURAL BUFFER ZONE						
ORANGE CONSTRUCTION FENCING	X	X	X	X		X
OUTLET PROTECTION			X			X
PERMANENT SEEDING AND PLANTING					X	
PIPE SLOPE DRAINS						
PLASTIC SHEETING		X	X			X
PRESERVE EXISTING VEGETATION	**X	X	X	X	X	X
SEDIMENT FENCING	**X	X	X	X	X	X
SEDIMENT BARRIER	X	X	X	X		X
SEDIMENT TRAP	X	X	X	X		X
SODDING						
SOIL TACKIFIERS						
STORM DRAIN INLET PROTECTION	X	X	X	X	X	X
STRAW WATTLES (OR OTHER MATERIALS)		X	X			X
TEMPORARY DIVERSION DIKES	X	X	X	X	X	X
TEMPORARY OR PERMANENT SEDIMENTATION BASINS		X	X	X		X
TEMPORARY SEEDING AND PLANTING	X	X	X		X	X
TREATMENT SYSTEM						
UNPAVED ROADS GRAVELED OR OTHER BMP ON THE ROAD	X	X	X	X	X	X
VEGETATIVE FILTER STRIPS						

** = SIGNIFIES BMP THAT WILL BE INSTALLED PRIOR TO ANY GROUND DISTURBING ACTIVITY.

*** = IT IS UNKNOWN WHETHER DEWATERING WILL BE REQUIRED. THE NEED FOR DEWATERING WILL BE DEPENDENT ON PROJECT SCHEDULE AND ACTUAL WET WEATHER CONDITIONS AT THE TIME OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EVALUATING THE NEED AND IMPLEMENTING DEWATERING IN THE FIELD. WHEN IT IS DETERMINED THERE IS A NEED FOR DEWATERING THE CONTRACTOR SHALL SUBMIT A PLAN COMPLIANT WITH DEQ PERMIT STANDARDS, INCLUDING METHODS USED AND DISPOSAL LOCATIONS. THIS PLAN SHALL BE SUBMITTED FOR REVIEW AND APPROVAL PRIOR TO IMPLEMENTATION OF DEWATERING MEASURES. (NOTE THAT THE PLAN REVIEW PERIOD SHOULD BE TAKEN INTO ACCOUNT AS IT WILL TAKE TIME FOR APPROVAL AND THE CONTRACTOR WILL NOT BE ALLOWED TO IMPLEMENT DEWATERING MEASURES UPON SUBMITTING THE DEWATERING PLAN.)

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05/31/19

EXPIRATION DATE: 12/31/20

PORTLAND GENERAL ELECTRIC INTEGRATED OPERATIONS CENTER

PORTLAND GENERAL ELECTRIC
12150 SW TUALATIN-SHERWOOD ROAD
TUALATIN, OR 97062

REVISIONS

CHECKED BY: MR
ISSUE DATE: 3 JUNE 2019
PROJECT NO: P18-003

EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

EROSION CONTROL NOTES

MG C901

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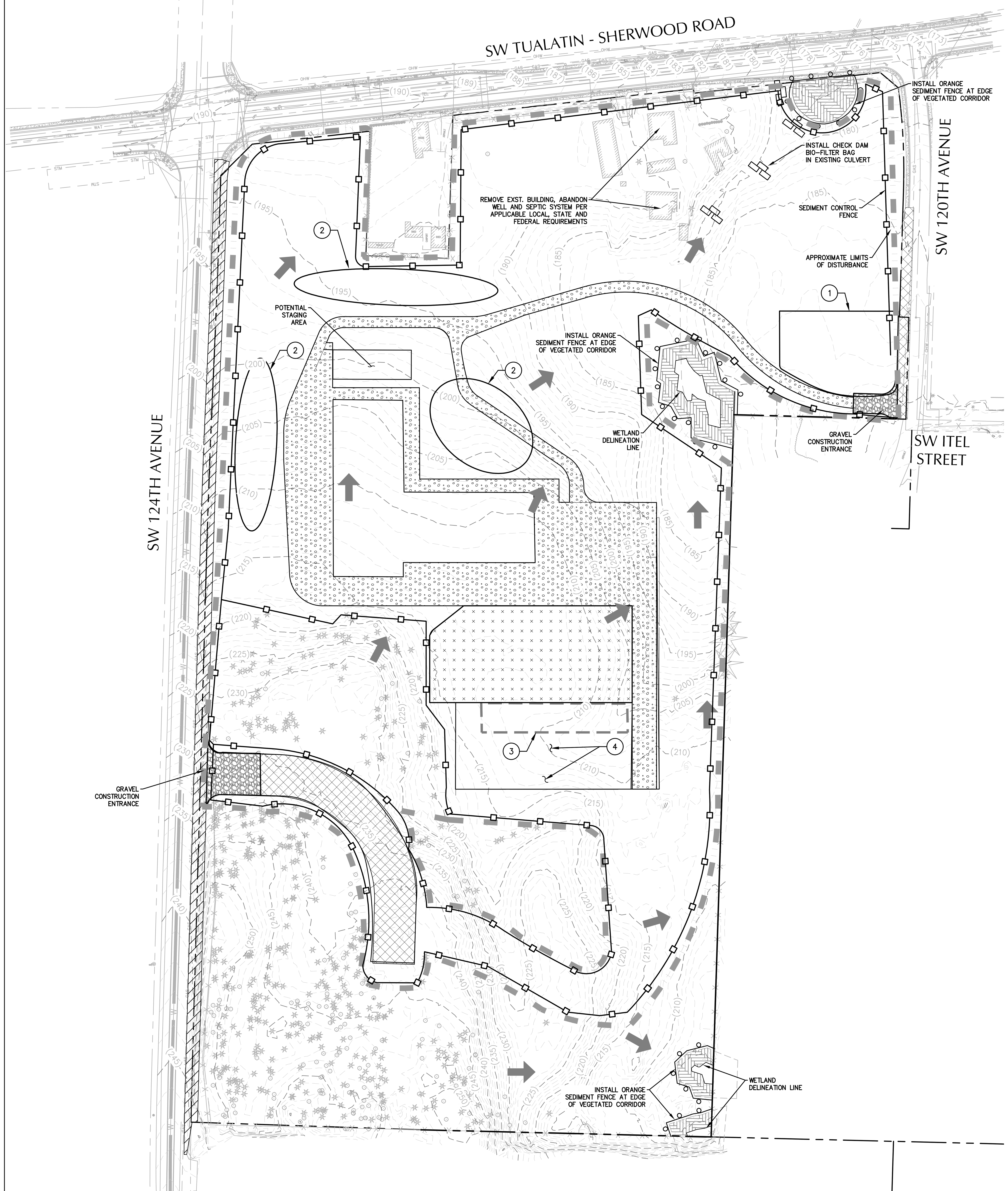
3/11/2019 9:59:29 AM SERA Design and Architecture, Inc.



EROSION AND SEDIMENT CONTROL BMP IMPLEMENTATION

1. ALL BASE ESC MEASURES (INLET PROTECTION, PERIMETER SEDIMENT CONTROL FENCING, GRAVEL CONSTRUCTION ENTRANCES, ETC.) MUST BE IN PLACE, FUNCTIONAL AND APPROVED IN AN INITIAL INSPECTION PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
2. SEDIMENT BARRIERS APPROVED FOR USE INCLUDE SEDIMENT FENCE, BERMS CONSTRUCTED OUT OF MULCH, CHIPPINGS OR OTHER SUITABLE MATERIAL, STRAW WATTLES OR OTHER APPROVED MATERIALS.
3. SENSITIVE RESOURCES INCLUDING, BUT NOT LIMITED TO, TREES, WETLANDS, AND RIPARIAN PROTECTION AREAS SHALL BE CLEARLY DELINEATED WITH ORANGE CONSTRUCTION FENCING OR CHAIN LINK FENCING IN A MANNER THAT IS CLEARLY VISIBLE TO ANYONE IN THE AREA. NO ACTIVITIES ARE PERMITTED TO OCCUR BEYOND THE CONSTRUCTION BARRIER.
4. CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES INCLUDING, BUT NOT LIMITED TO, STREET SWEEPING AND VACUUMING MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.
5. RUN-ON AND RUN-OFF CONTROLS SHALL BE INPLACE AND FUNCTIONING PRIOR TO BEGINNING SUBSTANTIAL CONSTRUCTION ACTIVITIES. RUN-ON AND RUN-OFF CONTROL MEASURES INCLUDE: SLOPE DRAINS (WITH OUTLET PROTECTION), CHECK DAM, SURFACE ROUGHENING AND BANK STABILIZATION.
6. THESE EROSION AND SEDIMENT CONTROL PLANS ASSUME "DRY WEATHER" CONSTRUCTION. "WET WEATHER" CONSTRUCTION MEASURES NEED TO BE APPLIED BETWEEN OCTOBER 1ST AND MAY 31ST.

(X) KEY NOTES

1 EARLY PARKING AREA
2 POTENTIAL STOCK PILE AREA – SEE DETAIL 3/MGC904
3 CONTRACTOR'S CONSTRUCTION TRAILER AREA
4 CONSTRUCTION PARKING AREA

SHEET LEGEND

- PROPERTY LINE
- DELINEATED WETLAND
- DEMOLITION/WORK LIMITS (SHOWN OFFSET FOR CLARITY)
- ORANGE FENCE
- SEDIMENT CONTROL FENCING (2/MGC904)
- INLET PROTECTION (4/MGC904)
- INSTALL CHECK DAM BIO-FILTER BAGS (5/MGC904)
- EXISTING CONTOUR MAJOR
- EXISTING CONTOUR MINOR
- GRAVEL CONSTRUCTION ENTRANCE (1/MGC904)
- DRAINAGE FLOW DIRECTION ARROW
- VEGETATED CORRIDOR
- STREET IMPROVEMENTS CONSTRUCTED UNDER A SEPARATE CITY OF TUALATIN PUBLIC WORKS PERMIT.
- 1/2 STREET IMPROVEMENT CONSTRUCTED UNDER SEPARATE WASHINGTON COUNTY PERMIT.
- ACCESS ROAD TO BE CONSTRUCTED OF HEAVY ROCK BASE
- MATERIAL LAY DOWN AREA

SCALE 1 INCH = 100 FEET
100 0 100 200

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MARK G. REULAND
EXPIRATION DATE: 12/31/20

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TUALATIN, OR 97062

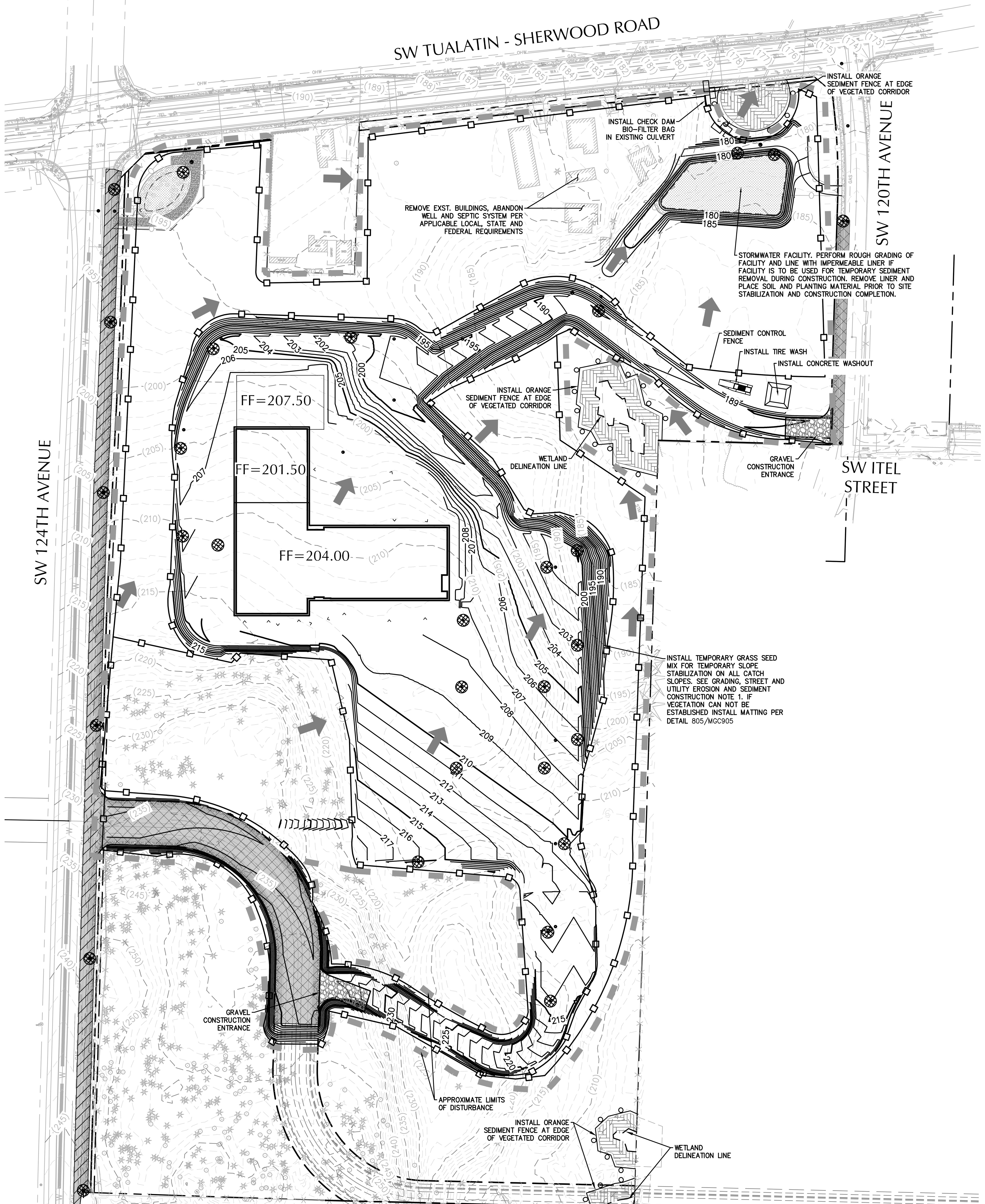
EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

REVISIONS

CHECKED BY:	MR
ISSUE DATE:	3 JUNE 2019
PROJECT NO:	P18-003

CLEARING & DEMOLITION EROSION AND SEDIMENT CONTROL PLAN

MG C902



GRADING, STREET AND UTILITY EROSION AND SEDIMENT CONSTRUCTION NOTES

1. SEED USED FOR TEMPORARY OR PERMANENT SEEDING SHALL BE COMPOSED OF ONE OF THE FOLLOWING MIXTURES, UNLESS OTHERWISE AUTHORIZED.

   A. VEGETATED CORRIDOR AREAS REQUIRE NATIVE SEED MIXES. SEE RESTORATION PLAN FOR APPROPRIATE SEED MIX.
   B. DWARF GRASS MIX (MIN. 100 LB./AC.)
      1. DWARF PERENNIAL RYEGRASS (80% BY WEIGHT)
      2. CREEPING RED FESCUE (20% BY WEIGHT)
   C. STANDARD HEIGHT GRASS MIX (MIN. 100 LB./AC.)
      1. ANNUAL RYEGRASS (40% BY WEIGHT)
      2. TURF–TYPE FESCUE (60% BY WEIGHT)
   D. AN ALTERNATE MIX IS BEING PROPOSED FOR TEMPORARY AND PERMANENT SEEDING FOR THIS PROJECT CONSISTING OF SUNMARK SEEDS "NATIVE EC MIX" TO BE APPLIED AT MIN. 43.63 LB./AC.:
      1. HORDEUM BRACHYANTHERUM – MEADOW BARLEY (40% BY WEIGHT)
      2. BROMUS CARINATUS – CALIFORNIA BROME (35% BY WEIGHT)
      3. FESTUCA RUBRA RUBRA – NATIVE RED FESCUE (20% BY WEIGHT)
      4. DESCHAMPSIA CESPITOSA – TUFTED HAIRGRASS (3% BY WEIGHT)
      5. AGROSTIS EXERATA – SPIKE BENTGRASS (2% BY WEIGHT)

2. SLOPE TO RECEIVE TEMPORARY OR PERMANENT SEEDING SHALL HAVE THE SURFACE ROUGHENED BY MEANS OF TRACK–WALKING OR THE USE OF THE APPROVED IMPLEMENTS. SURFACE ROUGHENING IMPROVES SEED BEDDING AND REDUCED RUN–OFF VELOCITY.

3. LONG TERM SLOPE STABILIZATION MEASURES SHALL INCLUDE THE ESTABLISHMENT OF PERMANENT VEGETATIVE COVER VIA SEEDING WITH APPROVED MIX AND APPLICATION RATE.

4. TEMPORARY SLOPE STABILIZATION MEASURES SHALL INCLUDE: COVERING EXPOSED SOIL WITH PLASTIC SHEETING, STRAW MULCHING, WOOD CHIPS, OR OTHER APPROVED MEASURES.

5. STOCKPILED SOIL OR STRIPPINGS SHALL BE PLACED IN A STABLE LOCATION AND CONFIGURATION. DURING "WET WEATHER" PERIODS, STOCKPILES SHALL BE COVERED WITH PLASTIC SHEETING OR STRAW MULCH. SEDIMENT FENCE IS REQUIRED AROUND THE PERIMETER OF THE STOCKPILE.

6. EXPOSED CUT OR FILL AREAS SHALL BE STABILIZED THROUGH THE USE OF TEMPORARY SEEDING AND MULCHING, EROSION CONTROL BLANKETS OR MATS. MID–SLOPE SEDIMENT FENCES OR WATTLES, OR OTHER APPROPRIATE MEASURES. SLOPES EXCEEDING 25% MAY REQUIRE ADDITIONAL EROSION CONTROL MEASURES.

7. AREAS SUBJECT TO WIND EROSION SHALL USE APPROPRIATE DUST CONTROL MEASURES INCLUDING THE APPLICATION OF A FINE SPRAY OR WATER, PLASTIC SHEETING, STRAW MULCHING, OR OTHER APPROVED MEASURES.

8. CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES INCLUDING, BUT NOT LIMITED TO, TIRE WASHES, STREET SWEEPING, AND VACUUMING MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.

9. ACTIVE INLETS TO THE STORM WATER SYSTEMS SHALL BE PROTECTED THROUGH THE USE OF APPROVED INLET PROTECTION MEASURES. ALL INLET PROTECTION MEASURES ARE TO BE REGULARLY INSPECTED AND MAINTAINED AS NEEDED.

10. SATURATED MATERIALS THAT ARE HAULED OFF–SITE MUST BE TRANSPORTED IN WATER–TIGHT TRUCKS TO ELIMINATE SPILLAGE OF SEDIMENT AND SEDIMENT–LADEN WATER.

11. AN AREA SHALL BE PROVIDED FOR THE WASHING OUT OF CONCRETE TRUCKS IN A LOCATION THAT DOES NOT PROVIDE RUN–OFF THAT CAN ENTER THE STORM WATER SYSTEM IF THE CONCRETE WASH–OUT AREA CAN NOT BE CONSTRUCTED GREATER THAN 50' FROM ANY DISCHARGE POINT. SECONDARY MEASURES SUCH AS BERMS OR TEMPORARY SETTLING PITS MAY BE REQUIRED. THE WASH–OUT SHALL BE LOCATED WITHIN SIX FEET OF TRUCK ACCESS AND BE CLEANED WHEN IS REACHES 50% OF THE CAPACITY.

12. SWEEPINGS FROM EXPOSED AGGREGATE CONCRETE SHALL NOT BE TRANSFERRED TO THE STORM WATER SYSTEM. SWEEPINGS SHALL BE PICKED UP AND DISPOSED IN THE TRASH.

13. AVOID PAVING IN WET WEATHER WHEN PAVING CHEMICALS CAN RUN–OFF INTO THE STORM WATER SYSTEM.

14. USE BMPs SUCH AS CHECK–DAMS, BERMS, AND INLET PROTECTION TO PREVENT RUN–OFF FROM REACHING DISCHARGE POINTS.

15. COVER CATCH BASINS, MANHOLES, AND OTHER DISCHARGE POINTS WHEN APPLYING SEAL COAT, TACK COAT, ETC. TO PREVENT INTRODUCING THESE MATERIALS TO THE STORM WATER SYSTEM.

EROSION AND SEDIMENT CONTROL BMP IMPLEMENTATION

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SHEET LEGEND

- PROPERTY LINE
- DELINEATED WETLAND
- DEMOLITION/WORK LIMITS (SHOWN OFFSET FOR CLARITY)
- ORANGE FENCE
- SEDIMENT CONTROL FENCING — 2/MGC904
- INLET PROTECTION — 4/MGC904
- INSTALL CHECK DAM BIO–FILTER BAGS — 5/MGC904
- EXISTING CONTOUR MAJOR (195)
- EXISTING CONTOUR MINOR (193)
- GRAVEL CONSTRUCTION ENTRANCE — 1/MGC904
- DRAINAGE FLOW DIRECTION ARROW
- VEGETATED CORRIDOR
- PROPOSED CONCRETE WASH OUT — 6/MGC904
- TEMPORARY WHEEL WASH — 1/MGC905
- SIDEWALK IMPROVEMENT CONSTRUCTED UNDER A SEPARATE CITY OF TUALATIN PUBLIC WORKS PERMIT.
- 1/2 STREET IMPROVEMENT CONSTRUCTED UNDER SEPARATE WASHINGTON COUNTY PERMIT.
- TEMPORARY SEDIMENT REMOVAL OR DEWATERING FACILITIES

SCALE 1 INCH = 100 FEET
100 0 100 200

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PORTLAND GENERAL ELECTRIC INTEGRATED OPERATIONS CENTER

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TUALATIN, OR 97062

REVISIONS

CHECKED BY: MR
ISSUE DATE: 3 JUNE 2019
PROJECT NO: P18-003

UTILITY, GRADING & STABILIZATION EROSION AND SEDIMENT CONTROL PLAN

MG C903

EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

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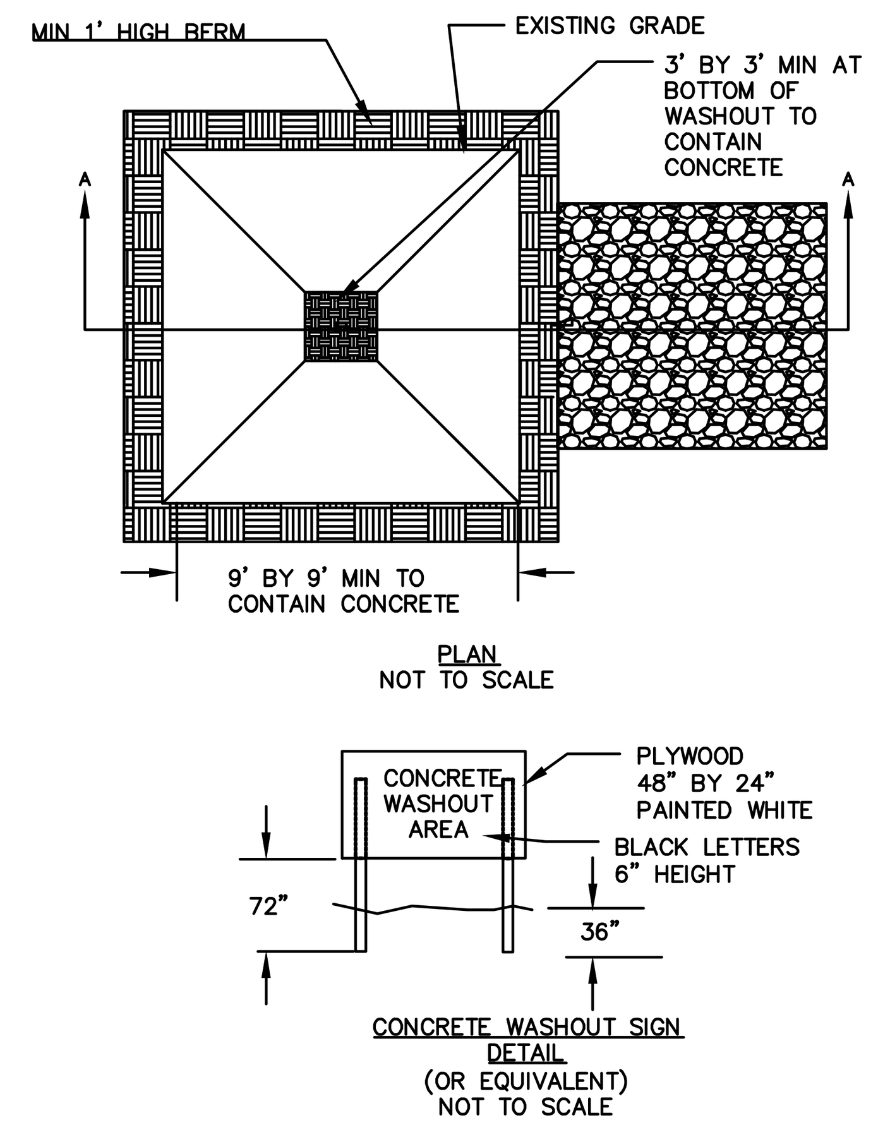
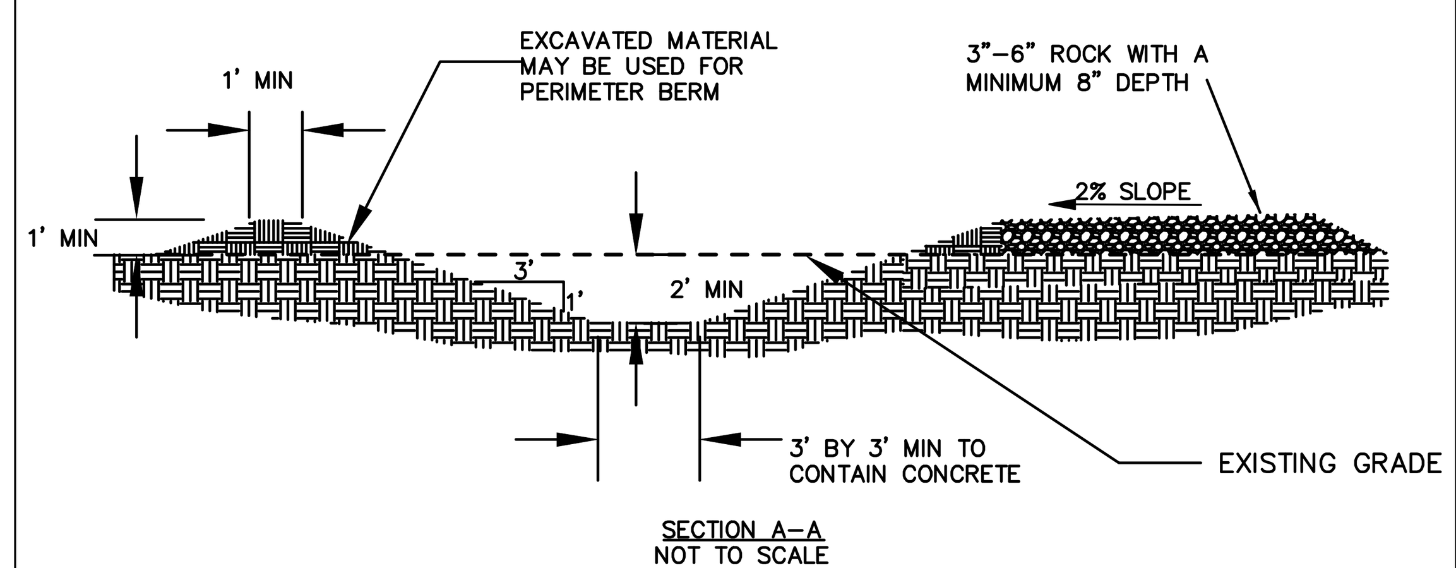
6 — CONCRETE WASHOUT

NOTES:

1. WASHOUT FACILITIES SHALL BE MAINTAINED TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM FREEBOARD OF 12 INCHES.
2. WASHOUT FACILITIES MUST BE CLEANED, OR NEW FACILITIES MUST BE CONSTRUCTED AND READY FOR USE ONCE THE WASHOUT IS 75% FULL.
3. IF THE WASHOUT IS NEARING CAPACITY, VACUUM AND DISPOSE OF THE WASTE MATERIAL IN AN APPROVED MANNER.
4. TEMPORARY CONCRETE WASHOUT FACILITIES SHALL BE LOCATED A MINIMUM OF 50 FT FROM SENSITIVE AREAS INCLUDING OPEN DRAINAGE FACILITIES AND WATERSOURSES.
5. CONCRETE WASHOUT FACILITIES SHALL BE CONSTRUCTED AND MAINTAINED IN SUFFICIENT QUANTITY AND SIZE TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS.
6. INSTALL CONCRETE WASHOUT SIGN WITHIN 30 FEET OF TEMPORARY CONCRETE WASHOUT FACILITY.
7. TEMPORARY CONCRETE WASHOUTS MAY BE A PREFABRICATED CONTAINER THAT IS PORTABLE AND REUSABLE.





CONCRETE WASHOUT

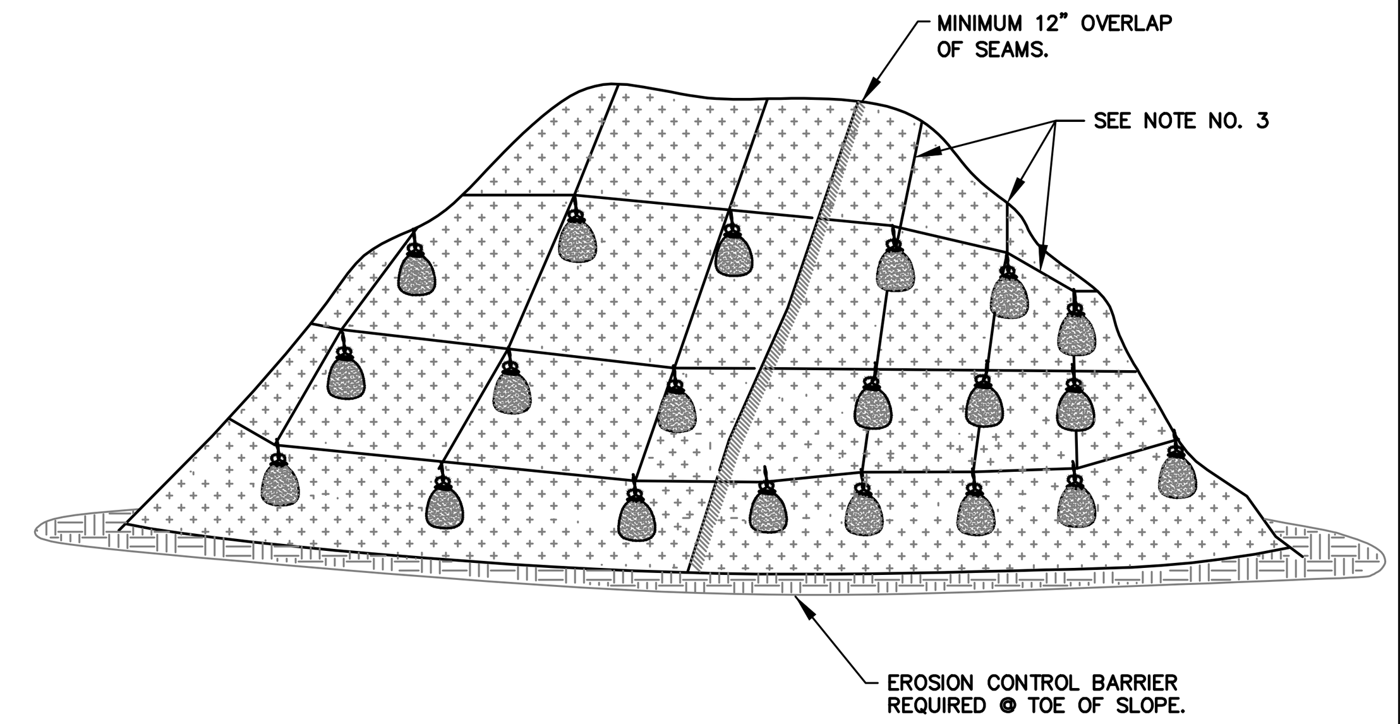
CleanWater Services

DRAWING NO. 900 REVISED 12–16

SCALE: NTS

3 — PLASTIC SHEETING

FOR FURTHER INFORMATION ON DESIGN CRITERIA SEE CHAPTER 4 OF CLEAN WATER SERVICES EROSION PREVENTION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.



PLASTIC SHEETING

NOTES:

1. MINIMUM 12" OVERLAP OF ALL SEAMS REQUIRED.
2. BARRIER REQUIRED @ TOE OF STOCK PILE.
3. COVERING MAINTAINED TIGHTLY IN PLACE BY USING SANDBAGS OR APPROVED EQUAL ON ROPES WITH A MAXIMUM 10' GRID SPACING IN ALL DIRECTIONS.
4. PLASTIC TO EXTEND MINIMUM 1' BEYOND TOE OF SLOPE

PLASTIC SHEETING

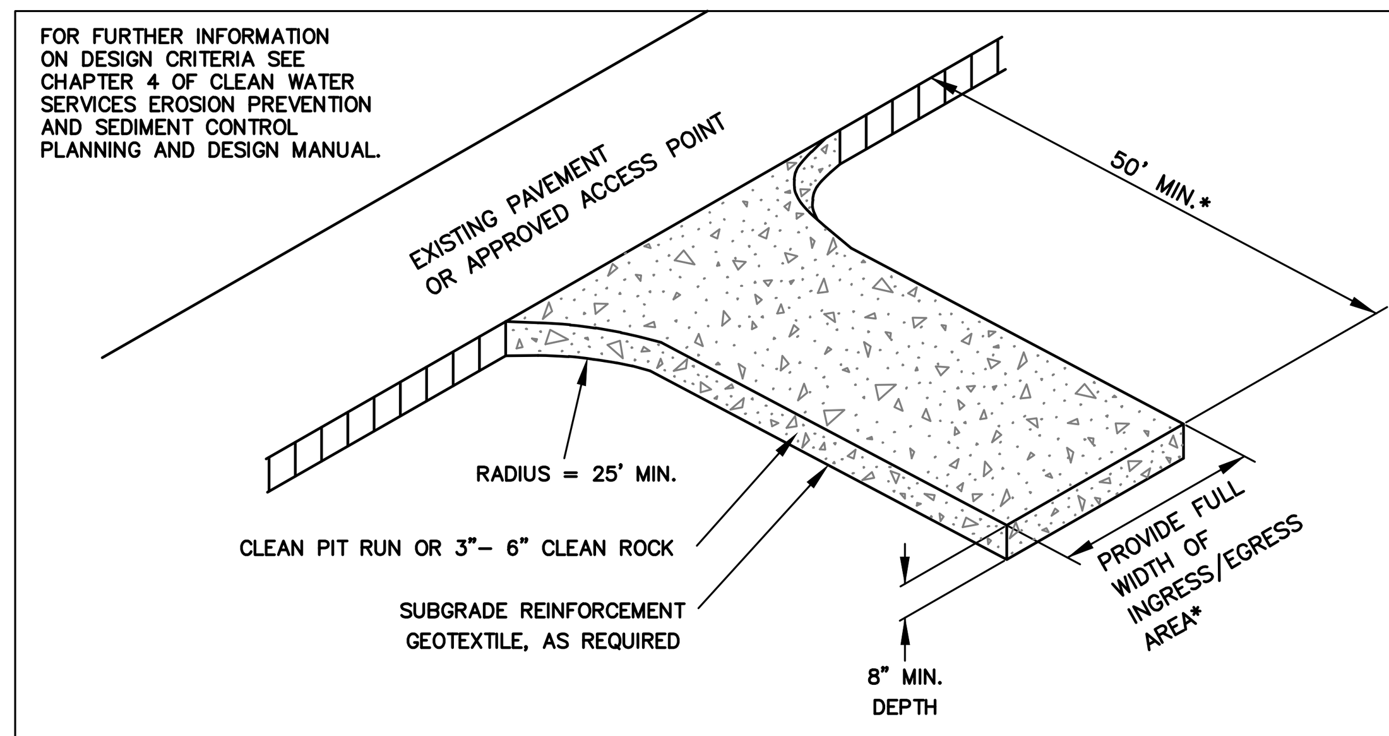
CleanWater Services

DRAWING NO. 810 REVISED 12–16

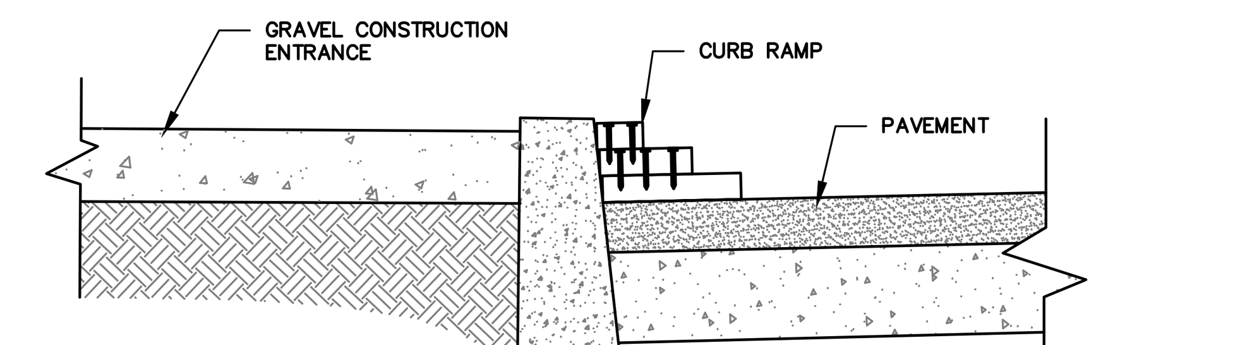
SCALE: NTS

1 — CONSTRUCTION ENTRANCE

FOR FURTHER INFORMATION ON DESIGN CRITERIA SEE CHAPTER 4 OF CLEAN WATER SERVICES EROSION PREVENTION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.



*20' MIN. FOR SINGLE FAMILY AND DUPLEX RESIDENTIAL



NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT–OF–WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT–OF– WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
4. WHERE RUNOFF CONTAINING SEDIMENT LADEN WATER IS LEAVING THE SITE VIA THE CONSTRUCTION ENTRANCE, OTHER MEASURES SHALL BE IMPLEMENTED TO DIVERT RUNOFF THROUGH AN APPROVED FILTERING SYSTEM.
5. DIMENSIONS
   SINGLE FAMILY
   20' LONG BY 20' WIDE 8" DEEP OF ¾" MINUS CLEAN ROCK.
   COMMERCIAL
   50' LONG BY 20' WIDE 3–6" CLEAN ROCK, GOVERNING AUTHORITY MAY REQUIRE GEOTEXTILE FABRIC TO PREVENT SUB–SOIL PUMPING.

CONSTRUCTION ENTRANCE

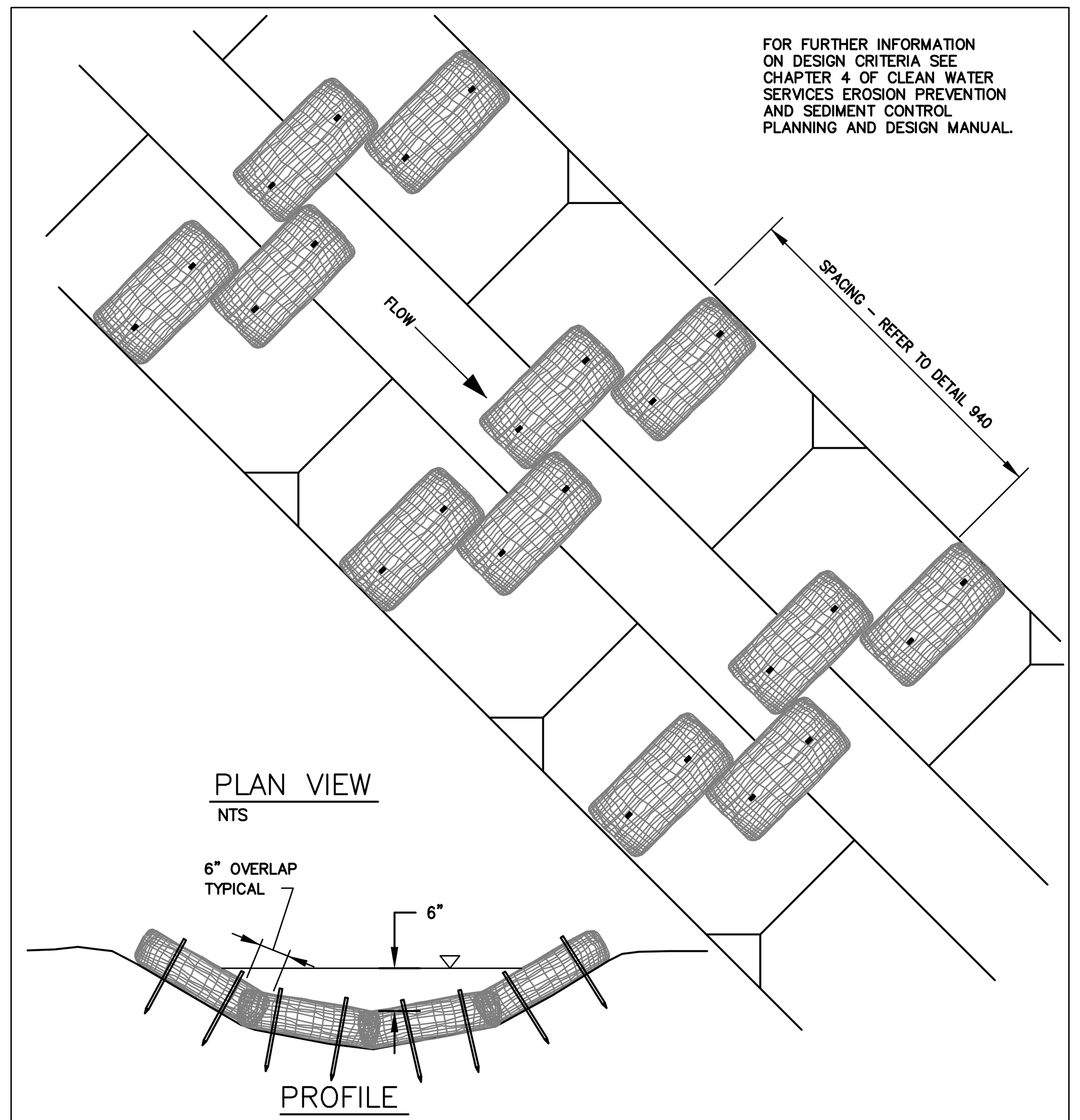
CleanWater Services

DRAWING NO. 855 REVISED 12–16

SCALE: NTS

5 — CHECK DAM BIO–FILTER BAG

FOR FURTHER INFORMATION ON DESIGN CRITERIA SEE CHAPTER 4 OF CLEAN WATER SERVICES EROSION PREVENTION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.



NOTES:

1. STAKING OF BAGS REQUIRED USING (2) 1"X2" WOOD STAKES OR APPROVED EQUAL PER BAG.
2. SURFACE MUST BE SMOOTH BEFORE APPLICATION.
3. CHECK DAMS CAN BE CONSTRUCTED USING STRAW WATTLES OR OTHER MATERIALS AS APPROVED BY THE DISTRICT OR CITY.

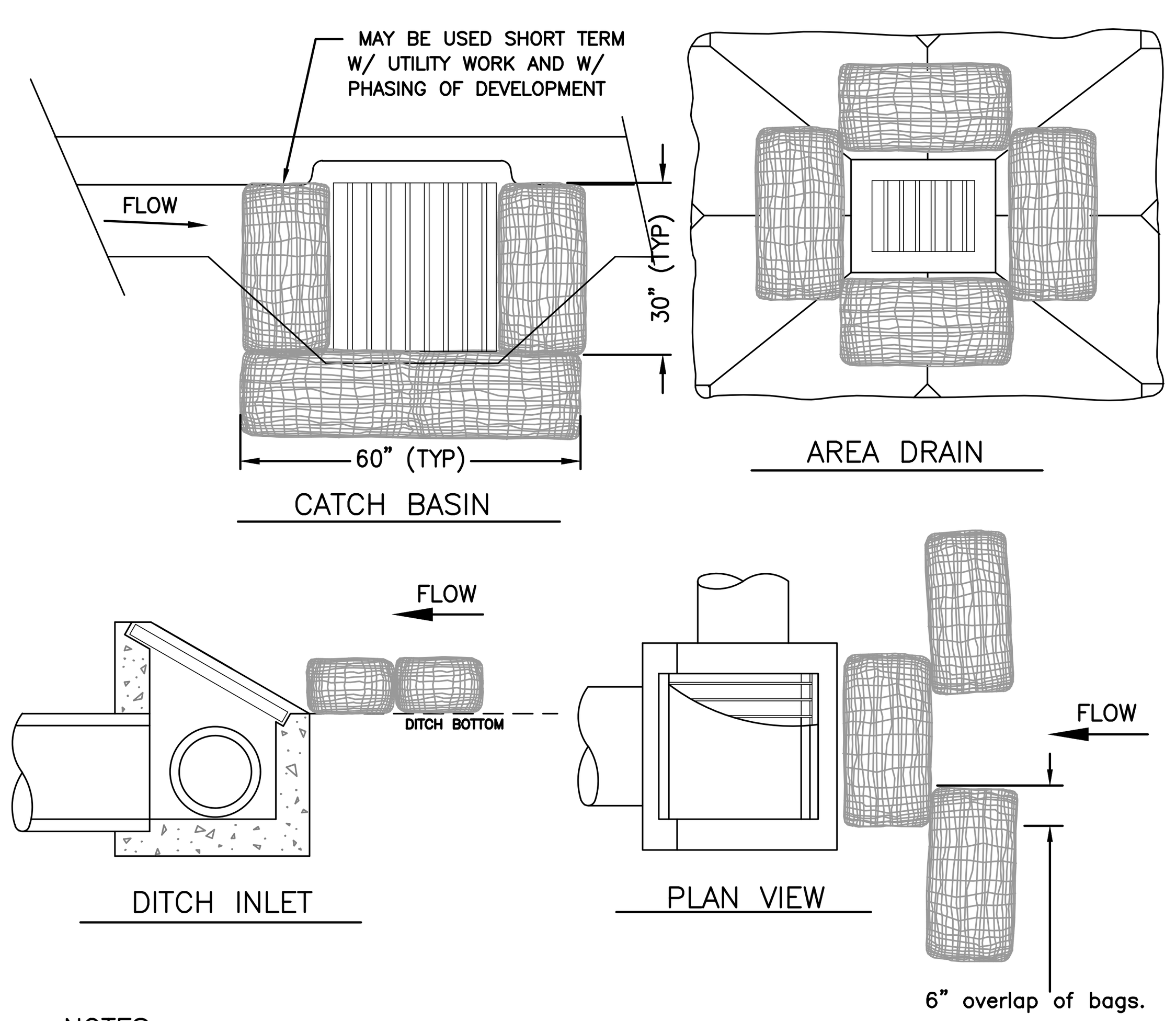
CHECK DAM BIO–FILTER BAG

CleanWater Services

DRAWING NO. 845 REVISED 12–16

SCALE: NTS

4 — INLET PROTECTION TYPE 4



NOTES:

1. ADDITIONAL MEASURES MUST BE CONSIDERED DEPENDING ON SOIL TYPES.
2. BIO–FILTER BAGS SHOULD BE STAKED WHERE APPLICABLE USING (2) 1"x2" WOODEN STAKES OR APPROVED EQUAL PER BAG.
3. WHEN USING 30" BIO–BAGS TO PROTECT A CATCH BASIN YOU MUST HAVE 4 BAGS AND THEY SHALL BE OVERLAPPED BY 6".

FOR FURTHER INFORMATION ON DESIGN CRITERIA SEE CHAPTER 4 OF CLEAN WATER SERVICES EROSION PREVENTION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.

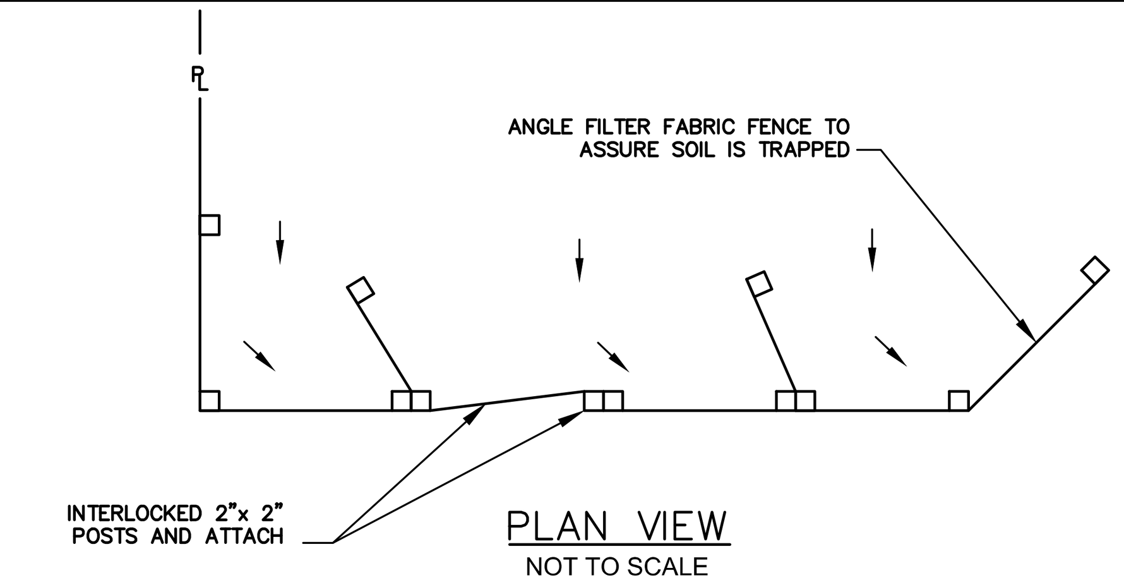
INLET PROTECTION TYPE 4

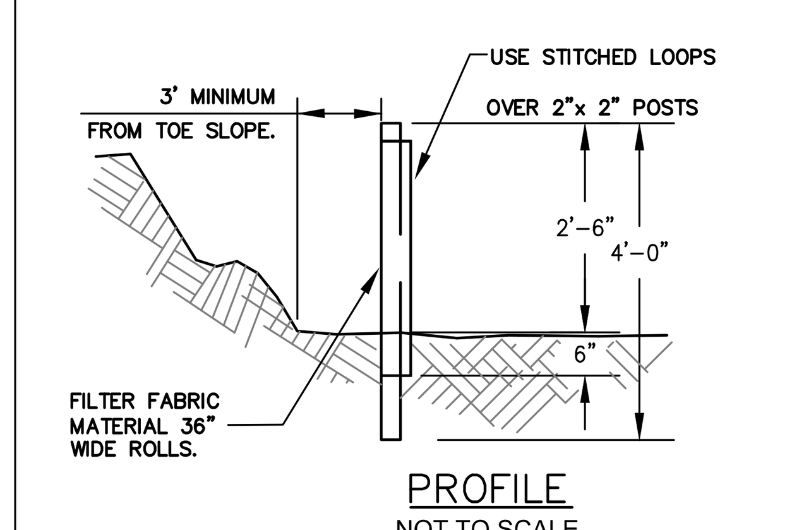
CleanWater Services

DRAWING NO. 915 REVISED 12–16

SCALE: NTS

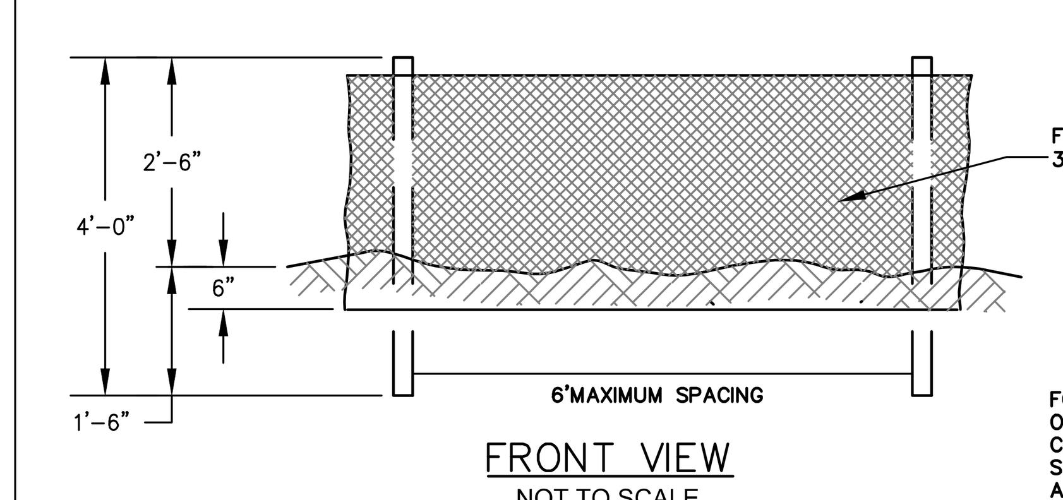
2 — SEDIMENT FENCE





NOTES:

1. BURY BOTTOM OF FILTER FABRIC 6" VERTICALLY BELOW FINISHED GRADE.
2. 2"x 2" FIR, PINE OR STEEL FENCE POSTS.
3. POSTS TO BE INSTALLED ON UPHILL SIDE OF SLOPE.
4. COMPACT BOTH SIDES OF FILTER FABRIC TRENCH.
5. PANELS MUST BE PLACED ACCORDING TO SPACING ON DETAIL NO.940



FOR FURTHER INFORMATION ON DESIGN CRITERIA SEE CHAPTER 4 OF CLEAN WATER SERVICES EROSION PREVENTION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL.

SEDIMENT FENCE

CleanWater Services

DRAWING NO. 875 REVISED 12–16

SCALE: NTS

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DREYFUSSBLACKFORD.COM

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REGISTERED PROFESSIONAL ENGINEER
69429
DIGITALLY SIGNED
OREGON
JUL 9, 2002
MARK G. REULAND
05/31/19
EXPIRATION DATE: 12/31/20

PORTLAND GENERAL ELECTRIC INTEGRATED OPERATIONS CENTER

PORTLAND GENERAL ELECTRIC
12150 SW TUALATIN-SHERWOOD ROAD
TUALATIN, OR 97062

EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

REVISIONS

CHECKED BY: MR
ISSUE DATE: 3 JUNE 2019
PROJECT NO: P18-003

EROSION AND SEDIMENT CONTROL DETAILS

MG C904

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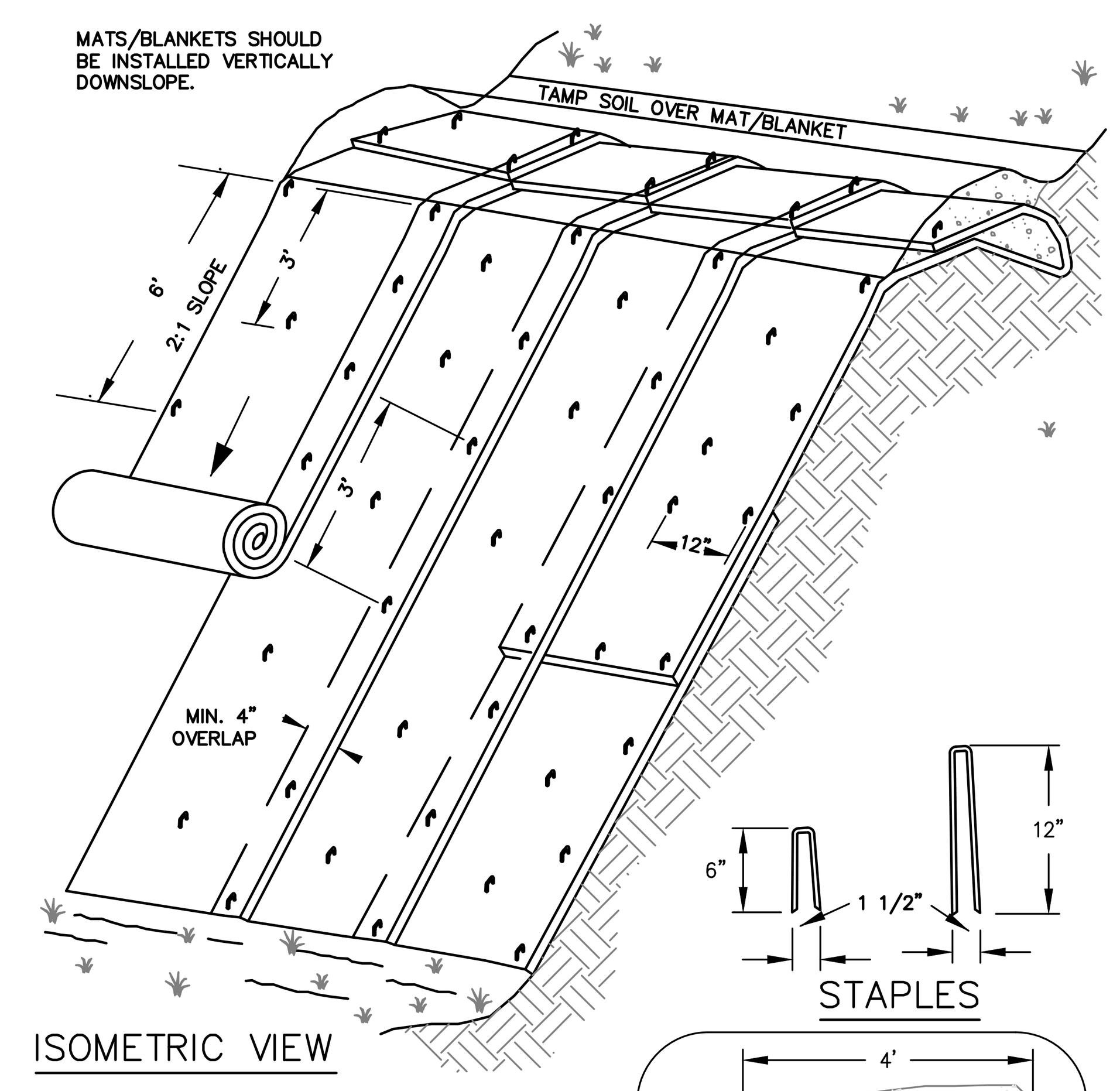
3/11/2019 9:59:29 AM SERA Design and Architecture, Inc.



ISOMETRIC VIEW

STAPLES

TYPICAL SLOPE
SOIL STABILIZATION

NOT TO SCALE

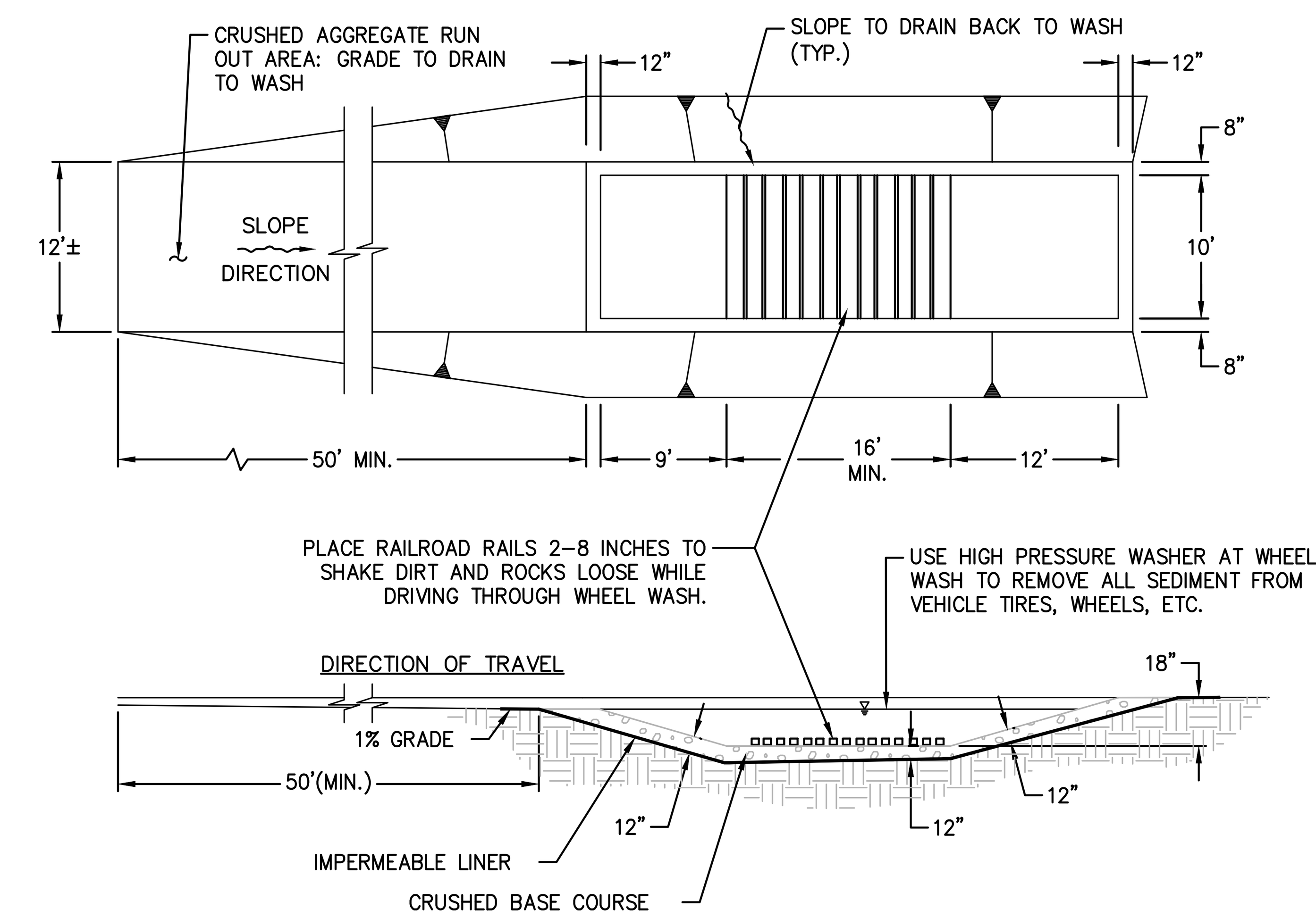
NOTES:

1. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.
2. APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.
3. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.
4. STAKING OR STAPLING LAYOUT PER MANUFACTURERS SPECIFICATIONS.

MATTING SLOPE INSTALLATION

Clean Water Services

DRAWING NO. 805 REVISED 12–16



NOTES:

1. CONTRACTOR SHALL PROVIDE SUMP PUMP, ABOVE GROUND PIPE, AND LARGE SIZE ORIFICE SPRINKLER TO SPREAD OVER EXISTING VEGETATION. SUBMIT DESIGNATED SPRINKLER AREA TO ENGINEER FOR APPROVAL.
2. CONTRACTOR TO MAINTAIN WHEELWASH DAILY BY REMOVING ACCUMULATED SEDIMENT AND SEDIMENT LADEN WATER FROM WHEEL WASH WHEN ACCUMULATION REACHES 50% OF VOLUME. THEN FILL WITH WATER TO MAINTAIN 12" OF WATER IN WHEELWASH AT ALL TIMES.
3. CONTRACTOR RESPONSIBLE FOR ENSURING PROPER PERFORMANCE OF THIS ESC MEASURE INCLUDING DRAINAGE TO AND AWAY FROM MEASURE.
4. CONTRACTOR TO REPAIR IMMEDIATELY ANY PROBLEMS PREVENTING PROPER PERFORMANCE OF THIS ESC MEASURE OR ITS UPSTREAM/ DOWNSTREAM CONVEYANCE STRUCTURES.
5. SEDIMENT REMOVED SHALL BE DISPOSED OF ON–SITE IN SOIL STOCKPILE AREA FOR RE–USE OR OFF–SITE TO A CITY APPROVED DISPOSAL FACILITY.

1 TEMPORARY WHEEL WASH
SCALE: NTS

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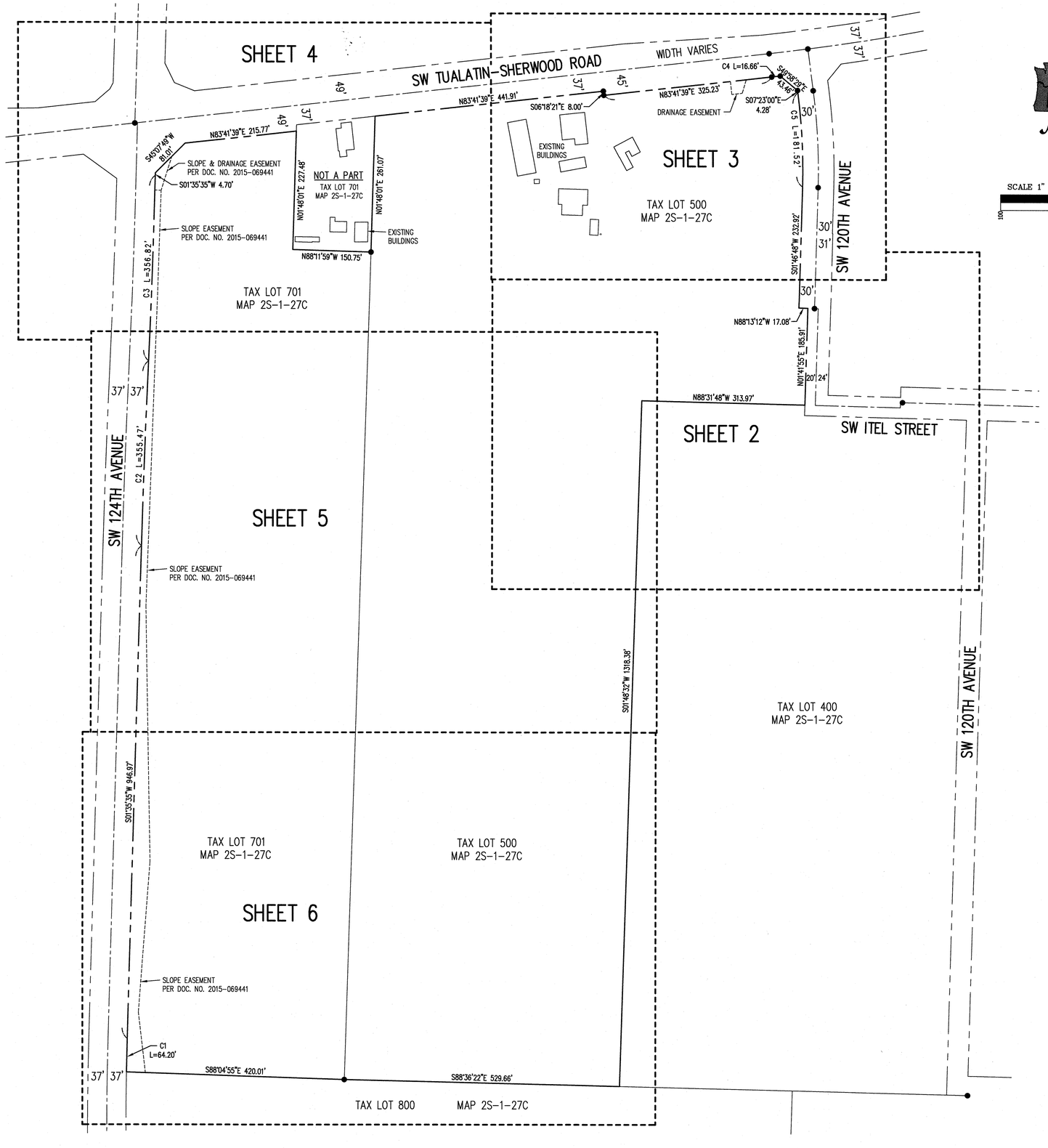
3/11/2019 9:59:29 AM



LEGEND

CONIFEROUS TREE		DECIDUOUS TREE	
FIRE HYDRANT		GAS VALVE	
WATER BLOWOFF	WBO	GUY WIRE ANCHOR	
WATER METER	WM	UTILITY POLE	
WATER VALVE	WV	POWER VAULT	P
WATER VAULT MANHOLE	WV	POWER JUNCTION BOX	EB
SANITARY SEWER CLEAN OUT		STREET LIGHT	
SANITARY SEWER MANHOLE	S	TELEPHONE MANHOLE	T
STORM SEWER CATCH BASIN		TELEPHONE/TELEVISION JUNCTION BOX	
STORM SEWER CURB INLET		TELEPHONE/TELEVISION RISER	TR
STORM SEWER MANHOLE		SIGNAL JUNCTION BOX	SGB
MAILBOX	MB	FOUND SURVEY MONUMENT	
SIGN			

RIGHT-OF-WAY LINE
BOUNDARY LINE
PROPERTY LINE
CENTERLINE
CURB
EDGE OF PAVEMENT
EASEMENT
FENCE LINE
GRAVEL EDGE
POWER LINE — PWR —
OVERHEAD WIRE — OHW —
TELEPHONE LINE — TEL —
GAS LINE — GAS —
STORM SEWER LINE — STM —
SANITARY SEWER LINE — SAN —
WATER LINE — WAT —

CURVE TABLE

CURVE	LENGTH	RADIUS	DELTA ANGLE	CHORD
C1	64.20'	6163.00'	0°35'49"	S01°17'41"W 64.20'
C2	355.47'	19061.59'	1°04'07"	S02°07'38"W 355.46'
C3	356.82'	19135.59'	1°04'06"	N02°07'38"E 356.81'
C4	16.66'	4045.00'	0°14'10"	N83°34'34"E 16.66'
C5	181.52'	1135.00'	9°09'48"	N02°48'06"W 181.33'

NOTES

1) THE MAJORITY OF THE FIELD SURVEYING FOR THIS MAP WAS COMPLETED JANUARY 4, 2019. A PORTION IN THE SOUTHWEST CORNER OF THE PROPERTY CONTAINS DENSE BRUSH AND IS TO BE SURVEYED IN THE NEAR FUTURE.

2) ELEVATIONS AND CONTOURS ARE BASED ON WASHINGTON COUNTY BENCHMARK NO. 102. THE BENCHMARK IS A BRASS DISK LOCATED AT THE INTERSECTION OF SW CIPOLE ROAD AND THE SOUTHERN PACIFIC RAILROAD RIGHT-OF-WAY. IT HAS AN ELEVATION OF 157.30 FEET ON THE NGVD 1929 DATUM. THAT ELEVATION WAS CONVERTED TO THE NAVD 1988 DATUM BY USING THE WASHINGTON COUNTY AVERAGE ADJUSTMENT OF 3.52 FEET. THE BENCHMARK ELEVATION ON THE NAVD 1988 DATUM IS 160.82 FEET.

3) THE BASIS OF BEARINGS FOR THIS SURVEY IS THE OREGON STATE PLANE COORDINATE SYSTEM, NORTH ZONE, NAD(83).

4) RIGHT-OF-WAY WIDTHS ARE BASED ON THE DEDICATION DEEDS, COUNTY TAX ASSESSOR'S MAP AND MULTIPLE RECORDED SURVEYS.

5) THE EASEMENTS SHOWN ON THIS MAP ARE BASED ON THE PRELIMINARY REPORT, PREPARED BY FIDELITY NATIONAL TITLE COMPANY OF OREGON, WITH ORDER NUMBER 45141819773 WITH AN EFFECTIVE DATE OF NOVEMBER 1, 2018 AT 8:00 AM.

6) THE UNDERGROUND UTILITIES ARE BASED ON THE MARKINGS PER LOCATE TICKET NUMBERS 18280911 AND 18291289.

7) WITHIN THE SOUTHERLY PORTION OF TAX LOT 700 WHERE THE TREES ARE LOCATED THERE ARE AREAS OF DENSE BRUSH. THE CLIENT PROVIDED SOME BRUSH REMOVAL TO ACCESS THE TREES, AND AN EFFORT WAS MADE TO PROVIDE A DETAILED TOPOGRAPHY OF THAT AREA. HOWEVER CONTOURS MAY VARY FROM ACTUAL GROUND ELEVATION WITHIN THE REMAINING AREAS OF DENSE BRUSH.

UTILITY STATEMENT

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

SEE SHEETS 2-6 FOR TOPOGRAPHIC INFORMATION
SEE SHEET 7 FOR TREE INFORMATION

NORTHWEST SURVEYING, INC.
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BEAVERTON, OR 97006
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EMAIL: nwsurveying@nwsrvy.com

LOCATED IN THE SW 1/4 OF SECTION 27, TOWNSHIP 2 SOUTH, RANGE 1 WEST, W.M., CITY OF TUALATIN, WASHINGTON COUNTY, OREGON

TOPOGRAPHIC SURVEY
TUALATIN, OREGON
TAX LOTS 500 & 701
TAX MAP 2S-1-27C

DRAWING NO.: 1883 TOPO
SCALE: AS NOTED
DRAWING GENERATED BY LD2004
DRAWN BY: CDW
CHECKED BY: CHS

PREPARED FOR:
DREYFUSS+BLACKFORD ARCHITECTURE
3540 FOLSOM BOULEVARD
SACRAMENTO, CA 95816

REVISIONS:
INITIAL RELEASE: JAN. 16, 2019
UPDATE TREES: FEB. 18, 2019
REVISED TREES: MAR. 25, 2019

REGISTERED PROFESSIONAL LAND SURVEYOR
OREGON
JANUARY 15, 2002
CLINTON H. STUBBS JR.
55469LS
RENEWS: 06/30/20

JOB NUMBER
1883

SHEET
1 OF 7

SEE SHEET 3

SEE SHEET 4

SEE SHEET 3

TAX LOT 500
MAP 2S-1-27C

APPROXIMATE LOCATION OF STORM TILE DRAIN, NO DEPRESSION VISIBLE

4' HIGH BARBED WIRE FENCE

4' HIGH BARBED WIRE FENCE

WETLAND BOUNDARY PROVIDED BY WETLAND SPECIALIST OF NORTHWEST SURVEYING. THE BOUNDARIES WERE NOT DELINEATED AT THE TIME THE FIELD WORK WAS PERFORMED.

GATE

GRAVEL

AREA WITH DENSE BRUSH
CONTOURS ARE APPROXIMATE

4' HIGH HOG WIRE FENCE

1.8'

2.1'

1.7'

APPROXIMATE LOCATION OF STORM TILE DRAIN, TRENCH DEPRESSION SEEN THROUGH THIS AREA

36" VERTICAL HDPE STORM PIPE WITH WATER FLOWING IN FROM THE EAST, COULD NOT SEE WATER FLOWING OUT

TAX LOT 500
MAP 2S-1-27C

4' HIGH BARBED WIRE FENCE

1.6'

4' HIGH BARBED WIRE FENCE

SEE SHEET 5

SEE SHEET 5

TAX LOT 500
MAP 2S-1-27C

TAX LOT 400
MAP 2S-1-27C

SW 120TH AVENUE

POLE WITH TRANSFORMER AND DOWN DROP

30'

31'

20'

24'

GRAVEL

GATE

SW ITEL STREET

POLE WITH TRANSFORMER

20'

30'

SPLIT 2-6", 8" & 2-11" MAPLE

ASPHALT

GRAVEL

SW 120TH AVENUE

SCALE 1" = 30 FEET

30 0 12 18 24 30

LEGEND

CONIFEROUS TREE		DECIDUOUS TREE	
FIRE HYDRANT		GAS VALVE	
WATER BLOWOFF	WBO	GUY WIRE ANCHOR	
WATER METER		UTILITY POLE	
WATER VALVE	WAT	POWER VAULT	P
WATER VAULT MANHOLE	WV	POWER JUNCTION BOX	EB
SANITARY SEWER CLEAN OUT		STREET LIGHT	
SANITARY SEWER MANHOLE	S	TELEPHONE MANHOLE	T
STORM SEWER CATCH BASIN		TELEPHONE/TELEVISION JUNCTION BOX	
STORM SEWER CURB INLET		TELEPHONE/TELEVISION RISER	TR
STORM SEWER MANHOLE		SIGNAL JUNCTION BOX	SGB
MAILBOX	MB	FOUND SURVEY MONUMENT	
SIGN			

RIGHT-OF-WAY LINE	
BOUNDARY LINE	
PROPERTY LINE	
CENTERLINE	
CURB	
EDGE OF PAVEMENT	
EASEMENT	
FENCE LINE	
GRAVEL EDGE	
POWER LINE	PWR
OVERHEAD WIRE	OHW
TELEPHONE LINE	TEL
GAS LINE	GAS
STORM SEWER LINE	STM
SANITARY SEWER LINE	SAN
WATER LINE	WAT

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TOPOGRAPHIC SURVEY

OREGON

TAX MAP 2S-1-27C

TUALATIN,

TAX LOTS 500 & 701

DRAWING NO.:	1883 TOPO
SCALE:	AS NOTED
DRAWING GENERATED BY LD2004	
DRAWN BY:	CDW
CHECKED BY:	CHS

PREPARED FOR:

DREYFUSS+BLACKFORD ARCHITECTURE
3540 FOLSOM BOULEVARD
SACRAMENTO, CA 95816

REVISIONS:

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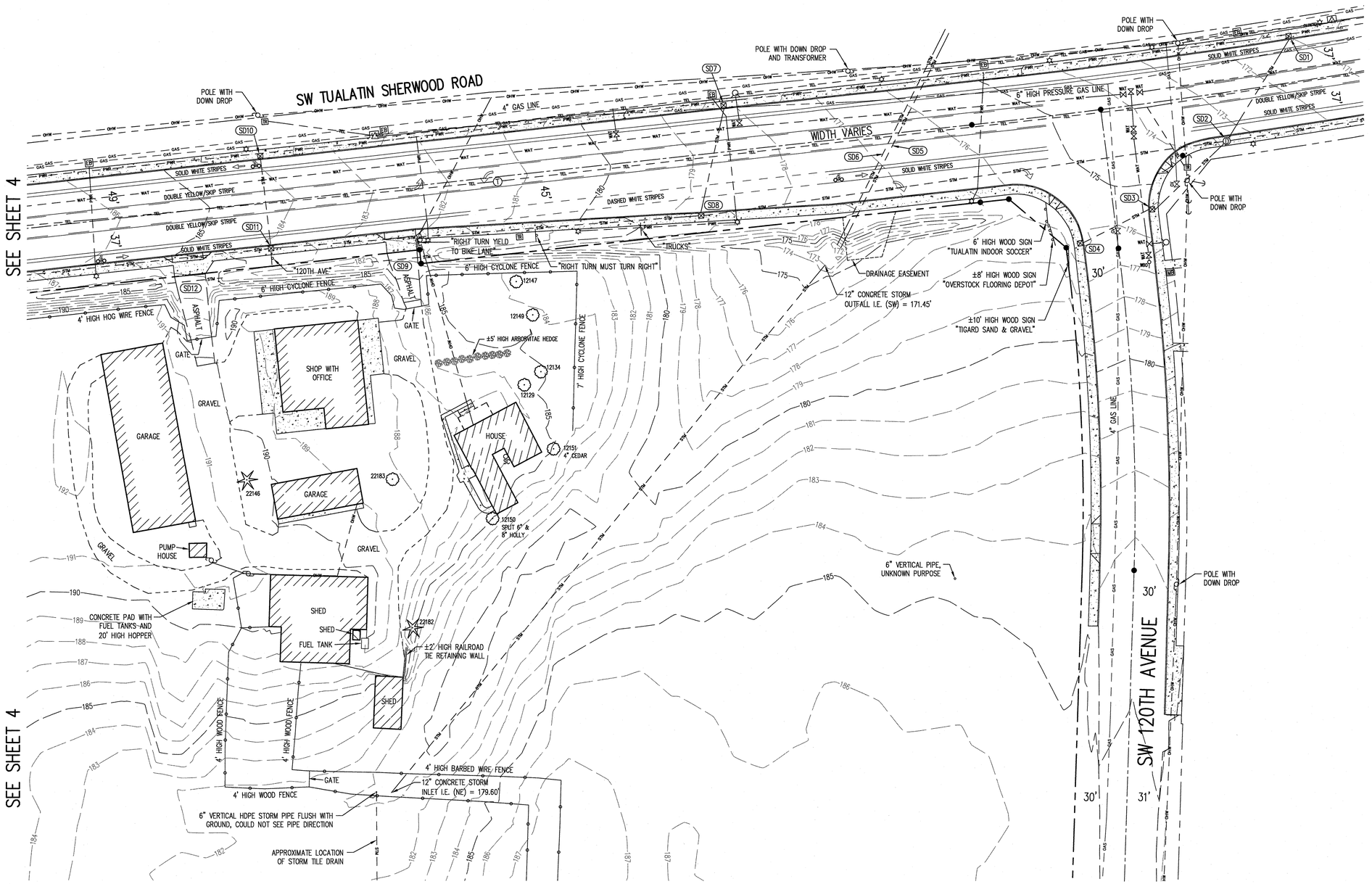
OREGON
JANUARY 15, 2002
CLINTON H. STUBBS JR.
55469LS
RENEWS: 06/30/20

JOB NUMBER
1883

SHEET
2 OF 7

LEGEND

CONIFEROUS TREE	SANITARY SEWER CLEAN OUT	DECIDUOUS TREE	STREET LIGHT
FIRE HYDRANT	SANITARY SEWER MANHOLE	GAS VALVE	TELEPHONE MANHOLE
WATER BLOWOFF	STORM SEWER CATCH BASIN	GUY WIRE ANCHOR	TELEPHONE/TELEVISION JUNCTION BOX
WATER METER	STORM SEWER CURB INLET	UTILITY POLE	TELEPHONE/TELEVISION RISER
WATER VALVE	STORM SEWER MANHOLE	POWER VAULT	SIGNAL JUNCTION BOX
WATER VAULT MANHOLE	MAILBOX	POWER JUNCTION BOX	FOUND SURVEY MONUMENT
	SIGN		
RIGHT-OF-WAY LINE	CURB	GRAVEL EDGE	GAS LINE
BOUNDARY LINE	EDGE OF PAVEMENT	POWER LINE	STORM SEWER LINE
PROPERTY LINE	EASEMENT	OVERHEAD WIRE	SANITARY SEWER LINE
CENTERLINE	FENCE LINE	TELEPHONE LINE	WATER LINE



SCALE 1" = 30 FEET

STORM SEWER INFORMATION

(SD1) CURB INLET
RIM = 171.65'
INLET ELEV. = 170.97'
12" I.E. OUT (SW) = 166.9'

(SD2) MANHOLE
RIM = 173.88'
12" I.E. IN (SW) = 169.7'
12" I.E. IN (NE) = 166.3'
24" I.E. IN (W) = 166.5'
24" I.E. OUT (E) = 166.2'

(SD3) CURB INLET
RIM = 176.07'
INLET ELEV. = 175.33'
12" I.E. IN (SW) = 170.3'
12" I.E. OUT (NE) = 170.2'

(SD4) CURB INLET
RIM = 176.53'
INLET ELEV. = 175.87'
12" I.E. OUT (NE) = 171.4'

(SD5) CONCRETE STORM CULVERT
21" I.E. IN (SW) = 171.14'
21" I.E. OUT (NE) = 167.66'

(SD6) CONCRETE STORM CULVERT
21" I.E. IN (SW) = 171.21'
21" I.E. OUT (NE) = 167.58'

(SD7) CURB INLET
RIM = 178.73'
INLET ELEV. = 178.11'
10" I.E. OUT (SW) = 175.1'

(SD8) CURB INLET
RIM = 179.32'
10" I.E. IN (N) = 174.7'
24" I.E. IN (W) = 167.6'
24" I.E. OUT (E) = 167.5'

(SD9) CONCRETE STORM CULVERT
21" I.E. IN (W) = 180.93'
21" I.E. OUT (E) = 180.30'

(SD10) CURB INLET
RIM = 184.52'
INLET ELEV. = 183.83'
10" I.E. OUT (S) = 180.1'

(SD11) CURB INLET
RIM = 184.48'
INLET ELEV. = 183.8'
10" I.E. IN (N) = 179.6'
24" I.E. IN (W) = 176.6'
24" I.E. OUT (E) = 176.2'

(SD12) CONCRETE STORM CULVERT
21" I.E. IN (W) = 184.17'
21" I.E. OUT (E) = 182.82'

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TOPOGRAPHIC SURVEY
TUALATIN, OREGON
TAX MAP 2S-1-27C
TAX LOTS 500 & 701

DRAWING NO.:	1883 TOPO
SCALE:	AS NOTED
DRAWING GENERATED BY LD2004	
DRAWN BY:	CDW
CHECKED BY:	CHS

PREPARED FOR:
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RENEWS: 06/30/20

JOB NUMBER
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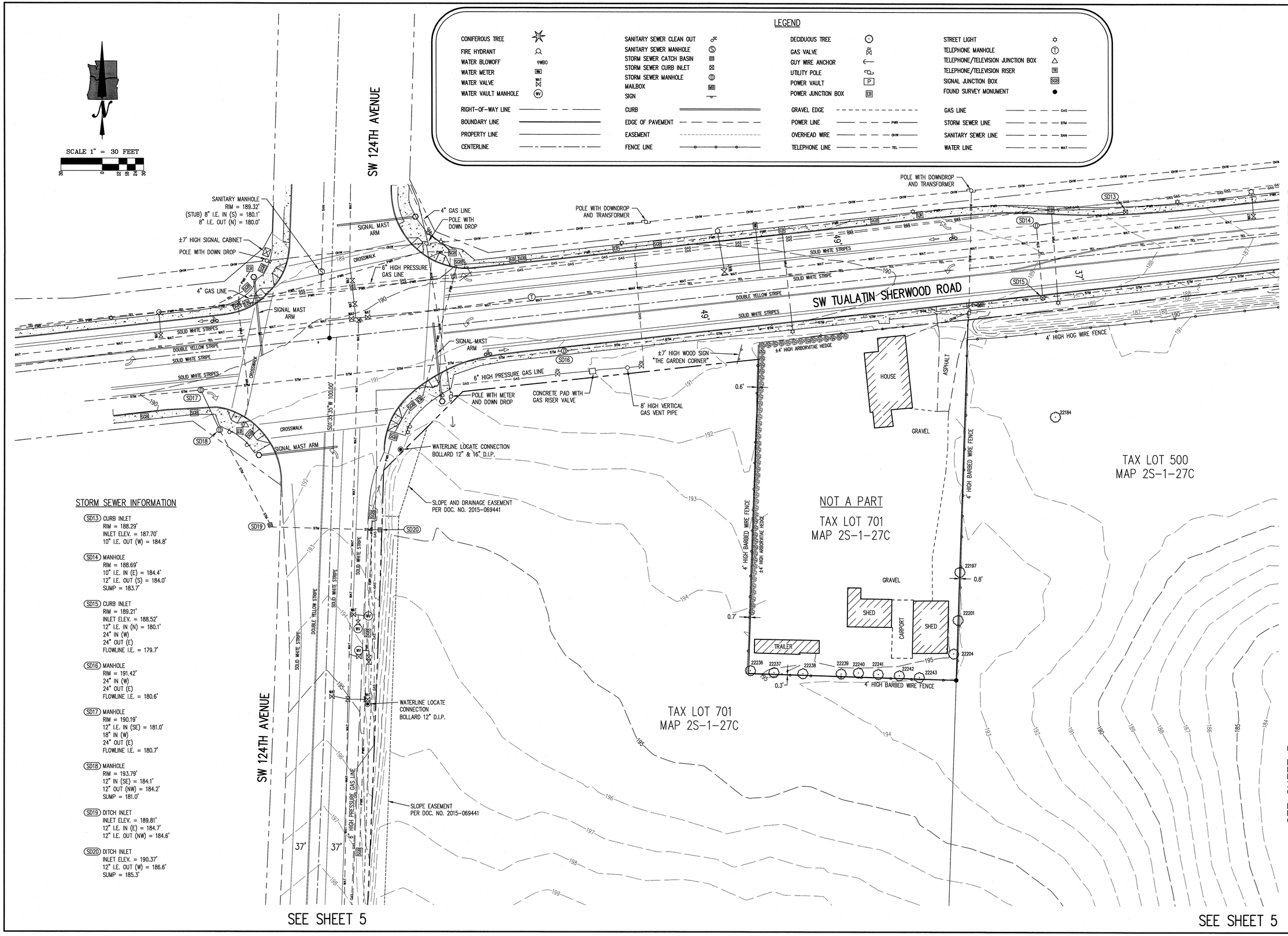
SHEET
3 OF 7



STORM SEWER INFORMATION

(SD13) CURB INLET
RIM = 188.29'
INLET ELEV. = 187.70'
10" I.E. OUT (W) = 184.8'

(SD14) MANHOLE
RIM = 188.69'
10" I.E. IN (E) = 184.4'
12" I.E. OUT (S) = 184.0'
SUMP = 183.7'

(SD15) CURB INLET
RIM = 189.21'
INLET ELEV. = 188.52'
12" I.E. IN (N) = 180.1'
24" IN (W)
24" OUT (E)
FLOWLINE I.E. = 179.7'

(SD16) MANHOLE
RIM = 191.42'
24" IN (W)
24" OUT (E)
FLOWLINE I.E. = 180.6'

(SD17) MANHOLE
RIM = 190.19'
12" I.E. IN (SE) = 181.0'
18" IN (W)
24" OUT (E)
FLOWLINE I.E. = 180.7'

(SD18) MANHOLE
RIM = 193.79'
12" IN (SE) = 184.1'
12" OUT (NW) = 184.2'
SUMP = 181.0'

(SD19) DITCH INLET
INLET ELEV. = 189.81'
12" I.E. IN (E) = 184.7'
12" I.E. OUT (NW) = 184.6'

(SD20) DITCH INLET
INLET ELEV. = 190.37'
12" I.E. OUT (W) = 186.6'
SUMP = 185.3'

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TOPOGRAPHIC SURVEY
TUALATIN, OREGON
TAX LOTS 500 & 701
TAX MAP 2S-1-27C

DRAWING NO.:	1883 TOPO
SCALE:	AS NOTED
DRAWING GENERATED BY LD2004	
DRAWN BY:	CDW
CHECKED BY:	CHS

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55489LS
RENEWS: 06/30/20

JOB NUMBER
1883

SHEET
4 OF 7

SEE SHEET 4

SEE SHEET 2

SEE SHEET 2

SW 124TH AVENUE

TAX LOT 701
MAP 2S-1-27C

TAX LOT 500
MAP 2S-1-27C

MAP 2S-1-27C

TAX LOT 400

37'

37'

SOLID WHITE STRIPE

SOLID WHITE STRIPE

DOUBLE YELLOW STRIPE

DOUBLE YELLOW STRIPE

SOLID WHITE STRIPE

"TUALATIN-SHERWOOD ROAD NEXT SIGNAL"

SLOPE EASEMENT
PER DOC. NO. 2015-069441

GRAVEL

WATERLINE LOCATE CONNECTION BOLLARD (END WATER LOCATES)

GRAVEL

4' HIGH BARBED WIRE FENCE

AREAS OF DENSE BRUSH, SEE NOTE 7

STOP LIGHT AHEAD SYMBOL

4' HIGH BARBED WIRE FENCE

SLOPE EASEMENT
PER DOC. NO. 2015-069441

AREAS OF DENSE BRUSH, SEE NOTE 7

4' HIGH BARBED WIRE FENCE

WETLAND BOUNDARY PROVIDED BY WETLAND SPECIALIST OF NORTHWEST SURVEYING. THE BOUNDARIES WERE NOT DELINEATED AT THE TIME THE FIELD WORK WAS PERFORMED.

APPROXIMATE LOCATION OF STORM TILE DRAIN, TRENCH DEPRESSION SEEN THROUGH THIS AREA

GATE

GRAVEL

4' HIGH BARBED WIRE FENCE

4' HIGH BARBED WIRE FENCE

4' HIGH BARBED WIRE FENCE

SCALE 1" = 40 FEET

SEE SHEET 6

SEE SHEET 6

NORTHWEST SURVEYING, INC.
1815 NW 169th PLACE, SUITE 2090
BEAVERTON, OR 97006
PH: (503) 848-2127 FAX: (503) 848-2179
EMAIL: nwsurveying@nwsurvy.com

LOCATED IN THE SW 1/4 OF SECTION 27, TOWNSHIP 2 SOUTH, RANGE 1 WEST, W.M., CITY OF TUALATIN, WASHINGTON COUNTY, OREGON

TOPOGRAPHIC SURVEY
TUALATIN, OREGON
TAX LOTS 500 & 701
TAX MAP 2S-1-27C

DRAWING NO.:	1883 TOPO
SCALE:	AS NOTED
DRAWING GENERATED BY	LD2004
DRAWN BY:	CDW
CHECKED BY:	CHS

PREPARED FOR:
DREYFUSS+BLACKFORD ARCHITECTURE
3540 FOLSOM BOULEVARD
SACRAMENTO, CA 95816

REVISIONS:
INITIAL RELEASE: JAN. 16, 2019
UPDATE TREES: FEB. 18, 2019
REVISED TREES: MAR. 25, 2019

REGISTERED PROFESSIONAL LAND SURVEYOR
OREGON
JANUARY 15, 2002
CLINTON H. STUBBS JR.
55469LS
RENEWS: 06/30/20

JOB NUMBER
1883

SHEET
5 OF 7

SEE SHEET 5

SEE SHEET 5

SW 124TH AVENUE

NO WATERLINE LOCATES

SOLID WHITE STRIPE

DOUBLE YELLOW STRIPE

DOUBLE YELLOW STRIPE

SOLID WHITE STRIPE

37'

37'

4' HIGH HOG WIRE FENCE

3.9'

WATERLINE LOCATE CONNECTION BOLLARD (NO LOCATES)

SLOPE EASEMENT PER DOC. NO. 2015-069441

AREAS OF DENSE BRUSH, SEE NOTE 7

AREAS OF DENSE BRUSH, SEE NOTE 7

AREA OF DENSE BRUSH, NO CONTOUR INFORMATION

TAX LOT 701
MAP 2S-1-27C

TAX LOT 500
MAP 2S-1-27C

TAX LOT 400
MAP 2S-1-27C

TAX LOT 800
MAP 2S-1-27C

4' HIGH BARBED WIRE FENCE

4' HIGH HOG WIRE FENCE

FENCE ON PROPERTY LINE

4' HIGH BARBED WIRE FENCE

4' HIGH HOG WIRE FENCE

1.0'

1.8'

WETLAND BOUNDARY PROVIDED BY WETLAND SPECIALIST OF NORTHWEST SURVEYING. THE BOUNDARIES WERE NOT DELINEATED AT THE TIME THE FIELD WORK WAS PERFORMED.

SCALE 1" = 40 FEET

40 0 10 20 40

NORTHWEST SURVEYING, INC.
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TOPOGRAPHIC SURVEY
TUALATIN, OREGON
TAX LOTS 500 & 701

TAX MAP 2S-1-27C

DRAWING NO.:	1883 TOPO
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RENEWS: 06/30/20

JOB NUMBER
1883

SHEET
6 OF 7

TREE INFORMATION

10094		BUCKTHORN
10095		BUCKTHORN
10096	14"	MADRONE
10098	9"	DOGWOOD
10099	14"	MADRONE
10100	5"	FIR
10207	14"	MADRONE
10208	11"	DECIDUOUS
10265	SPLIT 14" & 16"	MADRONE
10322	SPLIT 5" & 7"	FIR
10342	SPLIT 12" & 17"	MADRONE
10343	22"	MADRONE
10980	7"	HOLLY
10985	19"	MADRONE
11007	SPLIT 2-6"	FIR
11030	13"	FIR
11382	13" (DEAD)	FIR
11386	43"	FIR
11424	SPLIT 6", 6", 8" & 2-11"	MAPLE
12129	12"	HOLLY
12134	8"	HOLLY
12147	22"	HAWTHORN
12149	16"	APPLE
12150	4"	CEDAR
12151	SPLIT 6" & 8"	HOLLY
14374	14"	FIR
14376	17"	FIR
14378	18"	FIR
14379	11"	FIR
14380	20"	MADRONE
14382	9"	FIR
14386	11"	FIR
14389	6"	FIR
14390	17"	FIR
14392	16"	MADRONE
14393	6"	FIR
14394	SPLIT 12" & 13"	MADRONE
14397	8"	HOLLY
14455	8"	MADRONE
14462	10"	MADRONE
14463	11"	MADRONE
14565	9"	MADRONE
14566	12"	MADRONE
14567	6"	FIR
14568	8"	FIR
14569	16"	MADRONE
14570	10"	MADRONE
14573	6"	FIR
14574	10"	FIR
14575	6"	MADRONE
14576	9"	MADRONE
14577	10"	MADRONE
14578	12"	MADRONE
14579	8"	FIR
14580	13"	MADRONE
14581	9"	MADRONE
14582	14"	FIR
14583	7"	FIR
14584	9"	FIR
14585	10"	FIR
14589	12"	MADRONE
14590	15"	OAK
14591	SPLIT 10" & 12"	MADRONE
14592	7 10	MADRONE
14593	11"	FIR
14594	6"	FIR
14595	7"	FIR
14596	16"	FIR
14597	10"	MADRONE
14598	12"	MADRONE
14599	SPLIT 7" & 10"	OAK
14600	11"	OAK
14601	8"	FIR
14602	10"	FIR
14603	9"	FIR
14604	8"	MADRONE
14605	6"	MADRONE
14606	9"	MADRONE
14607	SPLIT 6" & 10"	MADRONE
14608	12"	MADRONE
14609	6"	FIR
14610	6"	FIR
14611	11"	FIR
14612	SPLIT 9" & 13"	MADRONE
14613	12"	MADRONE
14614	13"	MADRONE
14615	6"	FIR
14616	6"	FIR
14619	13"	MADRONE
14620	13"	MADRONE
14621	8"	FIR
14622	12"	MADRONE
14623	6"	BUCKTHORN
14624	12"	MADRONE
14626	14"	MADRONE
14627	7"	MADRONE
14628	10"	MADRONE
14629	9"	MADRONE
14630	SPLIT 2-10"	MADRONE
14631	10"	MADRONE
14632	13"	MADRONE
14633	6"	FIR
14634	7"	FIR
14635	8"	FIR
14636	10"	FIR
14637	8"	FIR
14638	SPLIT 6" & 8"	FIR
14639	7"	FIR
14640	7"	FIR
14641	6"	FIR
14642	8"	FIR
14643	18"	MADRONE
14644	8"	FIR
14647	7"	FIR
14648	13"	MADRONE
14649	15"	MADRONE
14650	6"	FIR
14651	6"	FIR
14652	10"	FIR
14653	8"	FIR
14654	9"	FIR
14655	7"	FIR
14656	7"	FIR
14657	10"	FIR
14658	8"	FIR
14659	13"	MADRONE
14660	10"	FIR
14661	6"	FIR
14662	8"	FIR
14663	10"	FIR
14664	9"	FIR
14665	11"	FIR
14666	8"	FIR
14667	7"	FIR
14668	11"	MADRONE
14669	10"	MADRONE
14671	7"	FIR
14673	6"	MADRONE
14674	6"	FIR
14675	10"	MADRONE
14677	8"	FIR
14678	6"	FIR
14679	9"	FIR
14680	8"	FIR
14681	7"	FIR
14682	7"	FIR
14683	6"	FIR
14687	6"	BUCKTHORN
14690	6"	FIR
14691	12"	BIRCH
14693	7"	FIR
14694	7"	FIR
14695	9"	FIR
14696	9"	FIR
14698	SPLIT 5", 6" & 7"	MADRONE
14699	9"	FIR
14700	8"	FIR
14701	8"	FIR
14702	6"	FIR
14703	9"	FIR
14704	7"	FIR
14705	7"	FIR
14706	6"	FIR
14707	9"	FIR
14708	9"	MADRONE
14709	6"	FIR
14710	10"	FIR
14711	7"	FIR
14712	8"	FIR
14713	6"	FIR
14714	7"	FIR
14715	7"	FIR
14716	9"	FIR
14717	6"	FIR
14718	10"	FIR
14719	10"	FIR
14720	7"	FIR
14721	10"	FIR
14722	6"	WILLOW
14723	9"	FIR
14724	7"	FIR
14725	11"	FIR
14726	6"	FIR
14727	10"	FIR
14728	7"	FIR
14729	8"	FIR
14730	6"	FIR
14731	10"	FIR
14732	10"	FIR
14733	7"	FIR
14734	10"	FIR
14735	9"	FIR
14736	8"	FIR
14737	13"	FIR
14738	14"	FIR
14744	9"	MADRONE
14745	SPLIT 7" & 12"	MADRONE
14767	13"	FIR
14773	7"	FIR
14774	SPLIT 6" & 7"	FIR
14775	7 8	FIR
14776	8"	FIR
14777	14"	MAPLE
14778	11"	FIR
14779	6"	FIR
14780	12"	FIR
14781	8"	FIR
14783	11"	FIR
14786	9"	FIR
14787	10"	FIR
14788	9"	FIR
14789	11"	FIR
14791	15"	FIR
14796	13"	FIR
14797	15"	FIR
14798	7"	FIR
14799	6"	FIR
14807	11"	FIR
14830	13"	FIR
14831	6"	FIR
14834	15"	FIR
14836	10"	FIR
14837	11"	FIR
14838	14"	FIR
14844	8"	FIR
14845	11"	FIR
14849	SPLIT 15" & 22"	OAK
14855	9"	MADRONE
14856	12"	MADRONE
14857	7"	MADRONE
14858	13"	FIR
14861	11"	MADRONE
14862	11"	MADRONE
14875	9"	FIR
14876	7"	FIR
14878	6"	FIR
14879	13"	MADRONE
14880	21"	FIR
14884	8"	OAK
14892	13"	MADRONE
14898	8"	MAPLE
14901	SPLIT 8" & 10"	WILLOW
14906	SPLIT 6" & 14"	FIR
14907	13"	FIR
14908	SPLIT 6" & 11"	FIR
14924	17"	WILLOW
14927	15"	FIR
14928	11"	FIR
14929	18"	FIR
14930	17"	FIR
14932	16"	FIR
14933	24"	FIR
14948	SPLIT 6", 7" & 8"	MADRONE
14953	17"	FIR
14958	12"	FIR
14960	13"	FIR
14961	8"	FIR
14963	17"	FIR
14964	9"	FIR
14965	10"	FIR
14966	6"	FIR
14967	13"	FIR
14968	10"	FIR
14969	11"	FIR
14970	6"	FIR
14971	10"	FIR
14973	13"	FIR
14974	11"	FIR
14975	10"	FIR
14976	7"	FIR
14977	7"	FIR
14978	6"	FIR
14979	SPLIT 2-6"	FIR
14980	9"	FIR
14981	12"	FIR
14982	11"	FIR
14983	6"	FIR
14984	8"	FIR
14985	12"	FIR
14986	9"	FIR
14987	6"	FIR
14988	9"	FIR
14989	12"	FIR
14990	14"	FIR
14993	12"	FIR
14994	10"	FIR
14995	12"	FIR
14997	10"	FIR
14998	11"	FIR
15000	11"	MADRONE
15001	21"	OAK
15002	6"	FIR
15003	6"	PINE
15004	6"	PINE
15005	23"	FIR
15006	10"	FIR
15007	SPLIT 7" & 16"	MADRONE
15008	SPLIT 6" & 16"	MADRONE
15009	8"	MADRONE
15010	6"	FIR
15011	6"	FIR
15012	6"	FIR
15013	13"	FIR
15014	8" (DEAD)	FIR
15015	SPLIT 6" & 7"	MAPLE
15016	SPLIT 6" & 13"	MADRONE
15017	22"	MADRONE
15018	12"	MADRONE
15019	16"	MADRONE
15020	13"	MADRONE
15021	9"	FIR
15022	9"	FIR
15023	8"	FIR
15024	6"	FIR
15025	8"	FIR
15026	9"	FIR
15027	14"	FIR
15028	7"	FIR
15029	15"	FIR
15030	6"	FIR
15031	12"	FIR
15032	7"	FIR
15033	16"	MADRONE
15034	18"	MADRONE
15035	6"	DECIDUOUS
15036	7"	FIR
15037	16"	MADRONE
15038	11"	MADRONE
15039	8"	FIR
15040	7"	FIR
15041	7"	FIR
15042	7"	FIR
15043	11"	FIR
15044	8"	MADRONE
15045	12"	MADRONE
15046	13"	MADRONE
15047	6"	FIR
15048	6"	FIR
15049	7"	FIR
15050	9"	FIR
15051	11"	FIR
15052	10"	MADRONE
15053	7"	FIR
15054	6"	FIR
15055	9"	FIR
15056	12"	FIR
15057	6"	FIR
15058	9"	FIR
15059	12"	MADRONE
15060	8"	FIR
15061	SPLIT 2-12"	MADRONE
15062	6"	FIR
15063	10"	FIR
15064	7"	FIR
15065	10"	MADRONE
15066	12"	MADRONE
15067	12"	MADRONE
15068	9"	MADRONE
15069	6"	MADRONE
15070	12"	MADRONE
15071	8"	MADRONE
15072	9"	MADRONE
15073	7"	MADRONE
15074	10"	MADRONE
15075	6"	PINE
15076	8"	FIR
15077	6"	FIR
15078	6"	FIR
15079	7"	FIR
15080	15"	FIR
15081	11"	MADRONE
15082	10"	MADRONE
15083	9"	FIR
15084	8"	FIR
15085	10"	FIR
15086	9"	FIR
15087	11"	MADRONE
15088	13"	MADRONE
15089	14"	FIR
15090	SPLIT 10" & 12"	MADRONE
15091	7"	FIR
15092	8"	FIR
15093	9"	FIR
15094	6"	HOLLY
15095	8"	HEMLOCK
15096	9"	MADRONE
15097	8"	MADRONE
15098	9"	FIR
15099	9"	FIR
15100	7"	FIR
15101	8"	FIR
15102	9"	FIR
15103	6"	FIR
15104	7"	FIR
15105	7"	FIR
15106	8"	FIR
15107	6"	FIR
15108	6"	FIR
15109	13"	FIR
15110	8"	FIR
15111	9"	FIR
15112	8"	MADRONE
15113	6"	FIR
15114	SPLIT 6" & 8"	MADRONE
15115	11"	MADRONE
15116	7"	FIR
15117	14"	FIR
15118	6"	FIR
15119	6"	FIR
15121	7"	FIR
15122	7"	FIR
15123	7"	FIR
15124	10"	MADRONE
15125	9"	FIR
15126	6"	FIR
15129	9"	FIR
15130	SPLIT 6" & 7"	FIR
15131	SPLIT 6" & 14"	MADRONE
15132	6"	FIR
15133	10"	FIR
15134	11"	FIR
15135	8"	FIR
15136	6"	FIR
15137	SPLIT 8" & 10"	FIR
15138	15"	FIR
15143	7"	FIR
15144	7"	FIR
15145	11"	MADRONE
15146	9"	FIR
15147	11"	MADRONE
15148	6"	MADRONE
15149	12"	FIR
15150	SPLIT 6" & 8"	FIR
15151	9"	FIR
15152	14"	FIR
15153	8"	FIR
15154	8"	FIR
15155	10"	FIR
15156	11"	FIR
15157	11"	FIR
15158	9"	FIR
15159	9"	FIR
15160	11"	FIR
15161	9"	FIR
15162	12"	FIR
15163	12"	FIR
15164	11"	FIR
15165	11"	FIR
15166	12"	FIR
15167	SPLIT 2-6" & 10"	FIR
15168	6"	FIR
15169	8"	FIR
15170	6"	FIR
15171	8"	FIR
15172	10"	FIR
15173	14"	FIR
15175	11"	MADRONE
15176	6"	MADRONE
15177	9"	FIR
15178	6"	FIR
15179	6"	MADRONE
15181	14"	MADRONE
15182	8"	FIR
15183	8"	FIR
15184	9"	FIR
15185	11"	FIR
15186	9"	FIR
15187	7"	FIR
15188	7"	FIR
15189	9"	FIR
15190	11"	FIR
15191	SPLIT 2-6"	FIR
15192	6"	FIR
15193	SPLIT 9" & 11"	FIR
15194	9"	FIR
15195	9"	FIR
15196	7"	FIR
15200	6"	MADRONE
15201	11"	OAK
15202	7"	MADRONE
15203	11"	MADRONE
15204	10"	FIR
15205	9"	FIR
15206	13"	FIR
15207	11"	FIR
15208	7"	FIR
15209	12"	FIR
15210	14"	FIR
15211	13"	FIR
15212	14"	FIR
15213	12"	FIR
15214	10"	FIR
15215	11"	FIR
15216	10"	FIR
15217	10"	FIR
15218	10"	FIR
15219	8"	FIR
15220	10"	FIR
15221	12"	FIR
15222	10"	FIR
15223	9"	FIR
15226	13"	FIR
15227	SPLIT 8" & 10"	FIR
15228	10"	FIR
15229	11"	FIR
15230	11"	FIR
15231	11"	FIR
15232	14"	FIR
15233	11"	FIR
15234	6"	FIR
15235	10"	FIR
15236	12"	FIR
15237	11"	FIR
15238	11"	FIR
15239	12"	FIR
15240	8"	FIR
15241	13"	FIR
15242	13"	FIR
15243	7"	FIR
15244	SPLIT 6" & 12"	FIR
15245	8"	FIR
15248	13"	FIR
15250	8"	FIR
15251	7"	FIR
15252	11"	FIR
15253	6"	FIR
15254	6"	FIR
15255	9"	FIR
15256	18"	FIR
15269	12"	FIR
15270	11"	FIR
15271	11"	MADRONE
15272	9"	FIR
15273	9"	FIR
15274	6"	DECIDUOUS
15275	6"	FIR
15276	6"	DECIDUOUS
15277	11"	FIR
15278	SPLIT 2-6"	FIR
15279	7"	FIR
15280	9"	MADRONE
15281	8"	FIR
15282	17"	FIR
15283	15"	FIR
15284	14"	FIR
15285	10"	FIR
15286	9"	FIR
15287	9"	FIR
15288	7"	FIR
15289	2-6	FIR
15290	6"	FIR
15291	9"	FIR
15293	10"	FIR
15294	6"	FIR
15295	11"	FIR
15296	11"	FIR
15297	7"	FIR
15298	10"	FIR
15299	8"	FIR
15300	7"	FIR
15301	6"	FIR
15302	12"	FIR
15303	8"	FIR
15304	11"	FIR
15305	8"	FIR
15306	7"	FIR
15307	11"	FIR
15308	SPLIT 7" & 10"	FIR
15309	8"	FIR
15316	11"	FIR
15317	9"	FIR
15318	7"	FIR
15319	9"	FIR
15320	8"	FIR
15321	10"	FIR
15322	9"	FIR
15323	6"	FIR
15324	10"	FIR
15325	7"	FIR
15326	6"	FIR
15327	10"	FIR
15328	11"	FIR
15329	11"	FIR
15330	11"	FIR
15331	12"	FIR
15332	7"	FIR
15333	12"	FIR
15334	8"	FIR
15335	6"	DECIDUOUS
15338	14"	MADRONE
15341	13"	FIR
15342	13"	FIR
15346	11"	FIR
15347	14"	FIR
15348	11"	FIR
15352	10"	FIR
16000	6"	FIR
16001	6"	FIR
16002	13"	FIR
16003	8"	FIR
16004	12"	FIR
16005	11"	FIR
16006	10"	FIR
16007	12"	FIR
16008	9"	FIR
16009	12"	FIR
16010	11"	FIR
16013	11"	FIR
16014	16"	FIR
16015	11"	FIR
16016	SPLIT 9" & 12"	FIR
16017	15"	FIR
16018	15"	FIR
16019	10"	FIR
16021	16"	FIR
16022	11"	FIR
16023	10"	FIR
16024	15"	FIR
16025	12"	FIR
16026	11"	FIR
16027	12"	FIR
16028	10"	FIR
16029	13"	FIR
16030	7"	FIR
16031	11"	FIR
16032	10"	FIR
16038	9"	FIR
16051	10"	FIR
16052	12"	FIR
16053	8"	FIR
16058	13"	FIR
16061	10"	FIR
16066	16"	FIR
16067	16"	FIR
16069	14"	FIR
16070	11"	FIR
16071	8"	FIR
16072	15"	FIR
16073	12"	FIR
16074	9"	FIR
16075	10"	FIR
16076	13"	FIR
16077	9"	FIR
16079	13"	FIR
16080	13"	FIR
16081	14"	FIR
16082	13"	FIR
16084	7"	FIR
16085	11"	FIR
16086	13"	FIR
16089	15"	FIR
16090	8"	WILLOW
16093	12"	FIR
16094	11"	FIR
16095	13"	FIR
16096	16"	FIR
16123	13"	FIR
16136	13"	FIR
16137	15"	FIR
16138	13"	FIR
16140	7"	FIR
16141	14"	FIR
16148	12"	FIR
16149	6"	MADRONE
16150	10"	MADRONE
16151	11"	FIR
16152	12"	FIR
16154	14"	FIR
16156	12"	FIR
16159	SPLIT 2-7"	MADRONE
16164	9"	FIR
16164B	SPLIT 2-6" & 8"	MADRONE
16178	SPLIT 2-8"	MADRONE
16205	13"	FIR
16207	14"	FIR
16208	11"	FIR
16209	13"	FIR
16213	12"	FIR
16215	15"	FIR
16216	13"	FIR
16217	11"	FIR
16218	13"	FIR
16219	15"	MADRONE
16242	13"	FIR
16243	18"	FIR
16245	14"	FIR
16246		WILLOW
16248	15"	FIR
16249	14"	FIR
16250	13"	FIR
16251	13"	FIR
16255	13"	FIR
16256	10"	FIR
16257	14"	FIR
16258	12"	FIR
16259	6"	FIR
16260	8"	FIR
16261	13"	FIR
16263	15"	FIR
16264	12"	FIR
16267	12"	FIR
16268	14"	FIR
16271	13"	FIR
16272	11"	FIR
16272B	SPLIT 3", 7" & 14"	CHERRY
16273	11"	FIR
16274	11"	FIR
16277	18"	MADRONE
16285	13"	CHERRY
16289	16"	FIR
16291	14"	FIR
16293	19"	FIR
16298	15"	FIR
16302	18"	FIR
16322	14"	FIR
16323	12"	FIR
16324	13"	FIR
16335	8"	CHERRY
16336	SPLIT 2-6", 8" & 9"	MADRONE
16341	12"	FIR
16354	12"	FIR
16355	12"	FIR
16356	12"	FIR
16357	8"	FIR
16358	8"	FIR
16359	13"	FIR
16360	12"	FIR
16361	15"	FIR
20048	13"	FIR
20049	17"	FIR
20051	14"	FIR
20053	12"	FIR
20055	14"	FIR
20059	10"	FIR
20060	11"	FIR
20061	10"	FIR
20268	21"	FIR
21188	14" (DEAD)	FIR
21189	31"	FIR
21193	43"	FIR
21196	42"	FIR
22146	44"	FIR
22182	14"	FIR
22183	23"	DECIDUOUS
22184	21"	APPLE
22197	SPLIT 3-9" & 2-11"	COTTONWOOD
22201	6"	COTTONWOOD
22204	SPLIT 21" & 2-25"	COTTONWOOD
22236	SPLIT 9", 11", 13", 2-17" & 18"	OAK
22237	47"	OAK
22238	26"	MAPLE
22239	24"	MAPLE
22240	37"	COTTONWOOD
22241	24"	COTTONWOOD
22242	SPLIT 6", 8", 9" & 13"	COTTONWOOD
22243	16"	ALDER

NORTHWEST SURVEYING, INC.
1815 NW 169th PLACE, SUITE 2090
BEAVERTON, OR 97006
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EMAIL: nwsurveying@nwsrvy.com

LOCATED IN THE SW 1/4 OF SECTION 27, TOWNSHIP 2 SOUTH, RANGE 1 WEST, W.M., CITY OF TUALATIN, WASHINGTON COUNTY, OREGON

TOPOGRAPHIC SURVEY
TUALATIN, OREGON
TAX MAP 2S-1-27C
TAX LOTS 500 & 701

DRAWING NO.:	1883 TOPO
SCALE:	AS NOTED
DRAWING GENERATED BY LD2004	
DRAWN BY:	CDW
CHECKED BY:	CHS

PREPARED FOR:
DREYFUSS+BLACKFORD ARCHITECTURE
3540 FOLSOM BOULEVARD
SACRAMENTO, CA 95816

REVISIONS:
INITIAL RELEASE: JAN. 16, 2019
UPDATE TREES: FEB. 18, 2019
REVISED TREES: MAR. 25, 2019

REGISTERED PROFESSIONAL LAND SURVEYOR
OREGON
JANUARY 15, 2002
CLINTON H. STUBBS JR.
55469LS
RENEWS: 06/30/20

JOB NUMBER
1883

SHEET
7 OF 7

LEGEND

CONIFEROUS TREE	SANITARY SEWER CLEAN OUT	DECIDUOUS TREE	STREET LIGHT
FIRE HYDRANT	SANITARY SEWER MANHOLE	GAS VALVE	TELEPHONE MANHOLE
WATER BLOWOFF	STORM SEWER CATCH BASIN	GUY WIRE ANCHOR	TELEPHONE/TELEVISION JUNCTION BOX
WATER METER	STORM SEWER CURB INLET	UTILITY POLE	TELEPHONE/TELEVISION RISER
WATER VALVE	STORM SEWER MANHOLE	POWER VAULT	SIGNAL JUNCTION BOX
WATER VAULT MANHOLE	MAILBOX	POWER METER	FOUND SURVEY MONUMENT
	SIGN		
RIGHT-OF-WAY LINE	CURB	GRAVEL EDGE	GAS LINE
BOUNDARY LINE	EDGE OF PAVEMENT	POWER LINE	STORM SEWER LINE
PROPERTY LINE	EASEMENT	OVERHEAD WIRE	SANITARY SEWER LINE
CENTERLINE	FENCE LINE	TELEPHONE LINE	WATER LINE

TREE INFORMATION

17229	24" FIR
17230	18" FIR
17231	24" FIR
17232	27" FIR
17240	31" FIR
17252	12" CHERRY
17253	SPLIT 6" & 10" DECIDUOUS
17254	20" FIR
17280	7" DECIDUOUS

STORM SEWER INFORMATION

(SD21) MANHOLE
RIM = 188.72'
10" I.E. IN (S) = 183.0'
10" I.E. IN (N) = 183.0'
12" I.E. IN (W) = 180.9'
15" I.E. OUT (E) = 180.9'

(SD22) CURB INLET
RIM TC = 188.68'
GUTTER FL = 188.01'
10" I.E. OUT (N) = 183.1'
SUMP = 181.3'

(SD23) CURB INLET
RIM TC = 188.71'
GUTTER FL = 188.02'
10" I.E. OUT (S) = 183.4'
SUMP = 183.1'

(SD24) MANHOLE
RIM = 191.89'
10" I.E. IN (S) = 182.7'
12" I.E. IN (W) = 182.7'
12" I.E. OUT (E) = 182.6'

(SD25) MANHOLE
RIM = 192.03'
10" I.E. IN (S) = 186.5'
10" I.E. IN (N) = 186.0'
12" I.E. IN (W) = 184.3'
12" I.E. OUT (E) = 184.2'

(SD26) CURB INLET
RIM TC = 192.12'
GUTTER FL = 191.40'
10" I.E. OUT (N) = 187.6'
SUMP = 186.5'

(SD27) CURB INLET
RIM TC = 192.12'
GUTTER FL = 191.40'
10" I.E. OUT (S) = 186.7'
SUMP = 184.7'

SANITARY SEWER INFORMATION

(SS1) MANHOLE
RIM = 188.88'
12" I.E. IN (S) = 181.8'
12" I.E. IN (W) = 180.2'
12" I.E. OUT (E) = 180.1'

(SS2) MANHOLE
RIM = 191.99'
12" I.E. IN (W) = 182.6'
12" I.E. OUT (E) = 182.5'

SCALE 1" = 20 FEET

SEE SHEET 2 OF 8

TAX LOT 500
MAP 2S-1-27C

TAX LOT 400
MAP 2S-1-27C

TAX LOT 401
MAP 2S-1-27C

TAX LOT 1300
MAP 2S-1-27BD

TAX LOT 1700
MAP 2S-1-27BD

TAX LOT 1800
MAP 2S-1-27BD

PARTITION PLAT NO. 2004-017

PARCEL 1

PARCEL 2

PARTITION PLAT NO. 2009-006

PARCEL 2

TAX LOT 1200
MAP 2S-1-27C

SW 120TH AVENUE

SW ITEL STREET

SW 120TH AVENUE

30' 31' 20' 24' 40'

POLE WITH TRANSFORMER AND DOWN DROP

6' CHAIN LINK FENCE

RAILROAD TIE WALL

SIDEWALK BARRICADE

GRAVEL

GATE

DRIVEWAY

6' TEMPORARY CHAIN LINK FENCE

STREET BARRICADE

"NO PARKING"

GRAVEL PILE

POLE WITH TRANSFORMER

ASPHALT PAD WITH METAL TANK FOR ASPHALT SEALANT

BARBED WIRE FENCE

ASPHALT

METAL GATE

NORTHWEST SURVEYING, INC.
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LOCATED IN THE NW 1/4 AND THE SW 1/4 OF SECTION 27, TOWNSHIP 2 SOUTH, RANGE 1 WEST, W.M., CITY OF TUALATIN, WASHINGTON COUNTY, OREGON

TOPOGRAPHIC SURVEY
TUALATIN, OREGON
WASHINGTON COUNTY TAX MAPS 2S-1-27BD & 2S-1-27C

DRAWING NO.:	1883 TOPO
SCALE:	AS NOTED
DRAWING GENERATED BY LD2004	
DRAWN BY:	BJA
CHECKED BY:	CHS

PREPARED FOR:
DREYFUSS+BLACKFORD ARCHITECTURE
3540 FOLSOM BOULEVARD
SACRAMENTO, CA 95816

REVISIONS:
INITIAL RELEASE: MAY 23, 2019

REGISTERED PROFESSIONAL LAND SURVEYOR
OREGON
JANUARY 15, 2002
CLINTON H. STUBBS JR.
55469LS
RENEWS: 06/30/20

JOB NUMBER
1883

SHEET
8 OF 8

LEGEND - TREE REMOVAL AND PRESERVATION

- TREE - EXISTING TO REMAIN. GENERAL PROTECTION AT DRIP LINE PER 1/MG-L553
- TREE - EXISTING TO REMAIN. MOVABLE PROTECTION AT DRIP LINE PER 2/MG-L553
- TREE - EXISTING TO BE REMOVED
- EROSION CONTROL FENCING: SEE CIVIL
- TREE PROTECTION CHAIN LINK FENCING PER 1/MG-L553
- XXXXX TREE TAG NUMBER. SEE EXISTING TREE TABLE SHEET

NOTES:

1. SEE CIVIL FOR PROPOSED GRADING CONDITIONS
2. PER THE ARBORIST'S OBSERVATIONS, ADDITIONAL TREES MAY NEED TO BE REMOVED DURING CONSTRUCTION ACTIVITIES DUE TO POOR GROWING CONDITIONS AND ADJACENT TREES BEING REMOVED AS INDICATED. TREES TO REMAIN THAT ARE WITHIN THE AREA OF DEVELOPMENT IMPACT MUST INCLUDE TREE PRESERVATION MEASURES AS SHOWN
3.

1 TREE REMOVAL AND PRESERVATION PLAN - NORTH

1" = 50'-0"

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REGISTERED 582 DANIEL K. JENKINS OREGON 10/31/19 LANDSCAPE ARCHITECT

PORTLAND GENERAL ELECTRIC INTEGRATED OPERATIONS CENTER

12160 SW TUALATIN-SHERWOOD ROAD
TUALATIN, OR 97062

REVISIONS

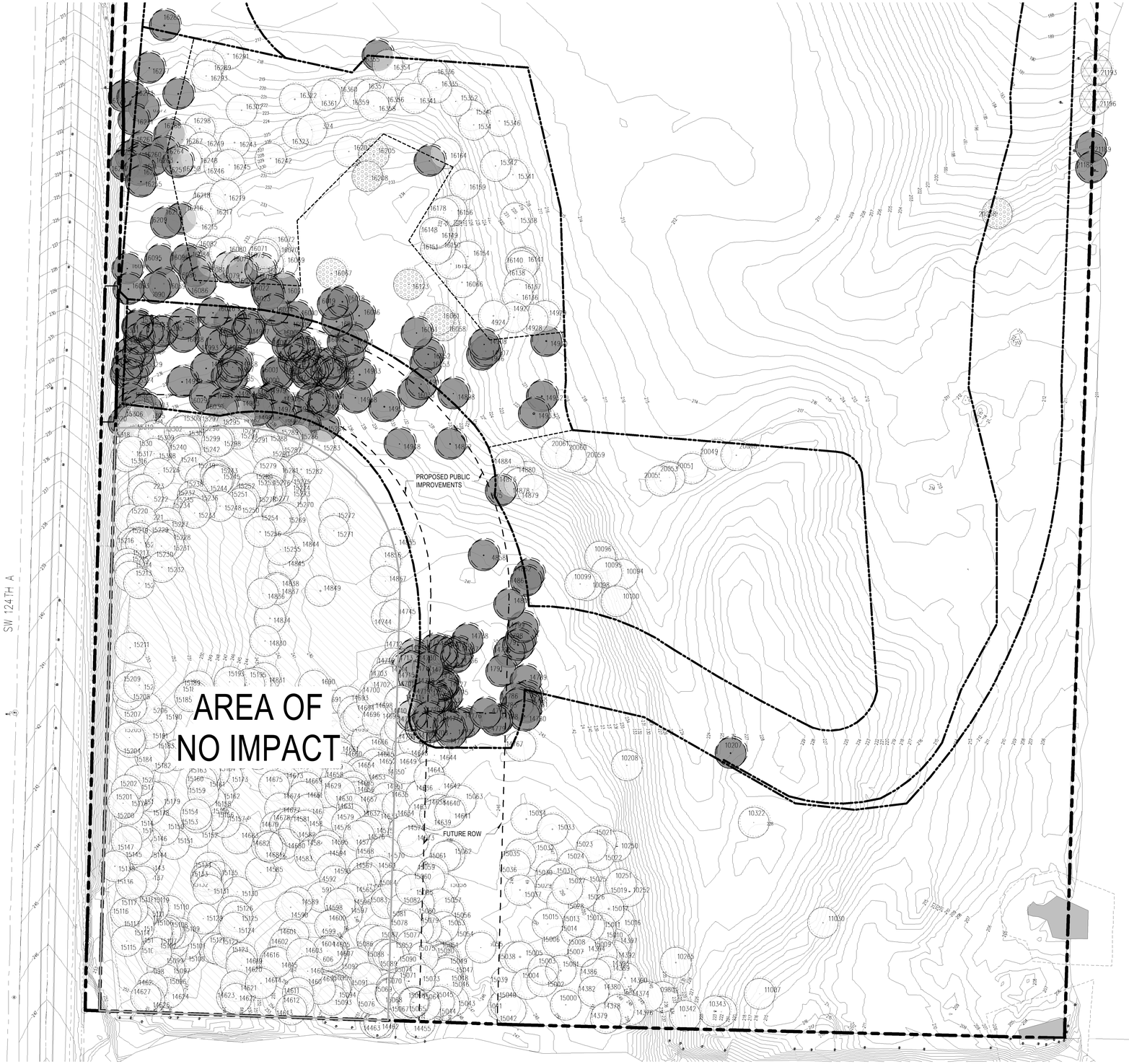
CHECKED BY: DJ
ISSUE DATE: 03 JUNE 2019
PROJECT NO: 1801003

TREE REMOVAL AND PRESERVATION PLAN

MG-L551

EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

5/31/2019 1:12:40 PM SERA Design and Architecture, Inc.



1 TREE REMOVAL AND PRESERVATION PLAN - SOUTH
1" = 50'-0"

LEGEND - TREE REMOVAL AND PRESERVATION

- TREE - EXISTING TO REMAIN. GENERAL PROTECTION AT DRIP LINE PER 1/MG-L553
- TREE - EXISTING TO REMAIN. MOVABLE PROTECTION AT DRIP LINE PER 2/MG-L553
- TREE - EXISTING TO BE REMOVED
- EROSION CONTROL FENCING: SEE CIVIL
- TREE PROTECTION CHAIN LINK FENCING PER 1/MG-L553
- XXXXX TREE TAG NUMBER. SEE EXISTING TREE TABLE SHEET

NOTES:
1. SEE CIVIL FOR PROPOSED GRADING CONDITIONS
2. PER THE ARBORIST'S OBSERVATIONS, ADDITIONAL TREES MAY NEED TO BE REMOVED DURING CONSTRUCTION ACTIVITIES DUE TO POOR GROWING CONDITIONS AND ADJACENT TREES BEING REMOVED AS INDICATED.
3. TREES TO REMAIN THAT ARE WITHIN THE AREA OF DEVELOPMENT IMPACT MUST INCLUDE TREE PRESERVATION MEASURES AS SHOWN

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REGISTERED 582 DANIEL K. JENKINS OREGON 10/31/19 LANDSCAPE ARCHITECT

PORTLAND GENERAL ELECTRIC INTEGRATED OPERATIONS CENTER

12150 SW TUALATIN-SHERWOOD ROAD
TUALATIN, OR 97062

REVISIONS

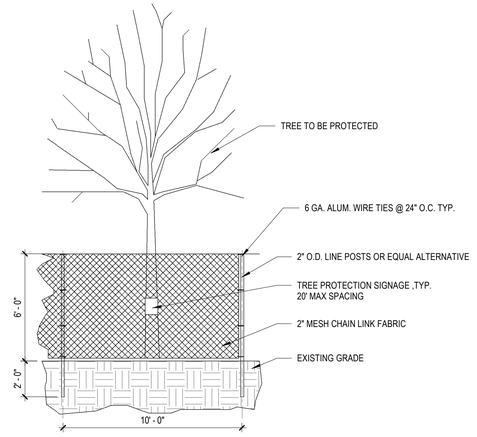
CHECKED BY: DJ
ISSUE DATE: 03 JUNE 2019
PROJECT NO: 1801003

TREE REMOVAL AND PRESERVATION PLAN

MG-L552

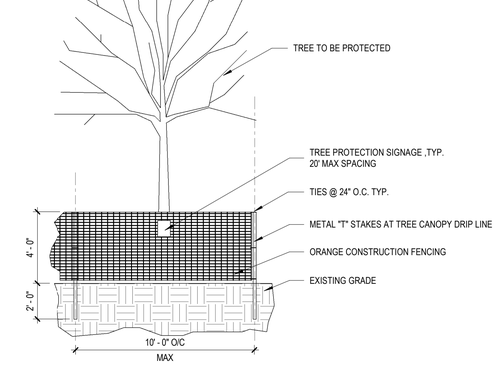
EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

5/31/2019 1:12:49 PM SERA Design and Architecture, Inc.



1. TREE PROTECTION FENCE SHALL BE INSTALLED PRIOR TO ANY SITE WORK, CLEARING OR DEMOLITION
2. TREE PROTECTION FENCE SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION. REMOVE FENCE ONLY WITH APPROVAL AND AFTER ALL SITE WORK HAS BEEN COMPLETED
3. THE WARNING SIGN SHALL BE DISPLAYED PROMINENTLY, BE A MINIMUM OF 8.5" X 11" AND CLEARLY STATE THE FOLLOWING: "WARNING - TREE PROTECTION ZONE"
4. FENCING MAY BE MOVED WITHIN THE TREE PROTECTION ZONE (TPZ) IF AUTHORIZED BY THE PROJECT ARBORIST AND CITY STAFF BUT NOT CLOSER THAN THE DRIP LINE FROM THE TRUNK OF ANY TREE

1 GENERAL TREE PROTECTION
1/4" = 1'-0"



1. TREE PROTECTION FENCE SHALL BE INSTALLED PRIOR TO ANY SITE WORK, CLEARING OR DEMOLITION
2. TREE PROTECTION FENCE SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
3. THE WARNING SIGN SHALL BE DISPLAYED PROMINENTLY, BE A MINIMUM OF 8.5" X 11" AND CLEARLY STATE THE FOLLOWING: "WARNING - TREE PROTECTION ZONE"
4. FENCING MAY BE MOVED WITHIN THE TREE PROTECTION ZONE (TPZ) IF AUTHORIZED BY THE PROJECT ARBORIST BUT NOT CLOSER THAN THE DRIP LINE FROM THE TRUNK OF ANY TREE. MOVING THESE BARRIERS TO ACCOMMODATE CERTAIN PHASES OF CONSTRUCTION IS ALLOWABLE ONLY WHEN THE PROJECT ARBORIST IS PRESENT. ALL BARRIERS SHOULD BE REPLACED AT THE END OF EACH WORK DAY.

2 MOVABLE TREE PROTECTION
1/4" = 1'-0"

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REGISTERED 582 DANIEL K. JENKINS OREGON 10/31/19 LANDSCAPE ARCHITECT

PORTLAND GENERAL ELECTRIC INTEGRATED OPERATIONS CENTER

12150 SW TUALATIN-SHERWOOD ROAD
TUALATIN, OR 97062

REVISIONS

CHECKED BY: DJ
ISSUE DATE: 03 JUNE 2019
PROJECT NO: 1801003

EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

TREE PROTECTION DETAILS

MG-L553

5/31/2019 1:12:50 PM SERA Design and Architecture, Inc.

EXISTING TREE SCHEDULE - EARLY GRADING

Mark	TRUNK DIAMETER	COMMON NAME	Protection Type
10094	2"	Douglas Hawthorn	FENCE ZONE
10095	2"	Douglas Hawthorn	FENCE ZONE
10096	1'-2"	Pacific Madrone	FENCE ZONE
10098	9"	Pacific Dogwood	FENCE ZONE
10099	1'-2"	Pacific Madrone	FENCE ZONE
10100	5"	Douglas Fir	FENCE ZONE
10207	1'-2"	Pacific Madrone	REMOVED
10208	11"	Pacific Dogwood	FENCE ZONE
10265	1'-4"	Pacific Madrone	FENCE ZONE
10322	7"	Douglas Fir	FENCE ZONE
10342	1'-5"	Pacific Madrone	FENCE ZONE
10343	1'-10"	Pacific Madrone	FENCE ZONE
10980	7"	English Holly	FENCE ZONE
10985	1'-7"	Pacific Madrone	FENCE ZONE
11007	6"	Douglas Fir	FENCE ZONE
11030	1'-1"	Douglas Fir	FENCE ZONE
12129	1'-0"	English Holly	REMOVED
12134	8"	Varigated English Holly	REMOVED
12147	1'-10"	Hawthorn species	REMOVED
12149	1'-4"	Apple	REMOVED
12150	8"	English Holly	REMOVED
12151	6"	Western Red Cedar	REMOVED
12182	1'-2"	Douglas Fir	REMOVED
14374	1'-2"	Douglas Fir	FENCE ZONE
14376	1'-5"	Douglas Fir	FENCE ZONE
14378	1'-6"	Douglas Fir	FENCE ZONE
14379	11"	Douglas Fir	FENCE ZONE
14380	1'-8"	Pacific Madrone	FENCE ZONE
14382	9"	Douglas Fir	FENCE ZONE
14386	11"	Douglas Fir	FENCE ZONE
14389	6"	Douglas Fir	FENCE ZONE
14390	1'-5"	Douglas Fir	FENCE ZONE
14392	1'-4"	Pacific Madrone	FENCE ZONE
14393	6"	Douglas Fir	FENCE ZONE
14394	1'-1"	Pacific Madrone	FENCE ZONE
14397	8"	English Holly	FENCE ZONE
14455	8"	Pacific Madrone	FENCE ZONE
14462	10"	Pacific Madrone	FENCE ZONE
14463	11"	Pacific Madrone	FENCE ZONE
14565	9"	Pacific Madrone	FENCE ZONE
14566	1'-0"	Pacific Madrone	FENCE ZONE
14567	6"	Douglas Fir	FENCE ZONE
14568	8"	Douglas Fir	FENCE ZONE
14569	1'-4"	Pacific Madrone	FENCE ZONE
14570	10"	Pacific Madrone	FENCE ZONE
14573	6"	Douglas Fir	FENCE ZONE
14574	10"	Douglas Fir	FENCE ZONE
14575	6"	Pacific Madrone	FENCE ZONE
14576	9"	Pacific Madrone	FENCE ZONE
14577	10"	Pacific Madrone	FENCE ZONE
14578	1'-0"	Pacific Madrone	FENCE ZONE
14579	8"	Douglas Fir	FENCE ZONE
14580	1'-1"	Pacific Madrone	FENCE ZONE
14581	9"	Pacific Madrone	FENCE ZONE
14582	1'-2"	Douglas Fir	FENCE ZONE
14583	7"	Douglas Fir	FENCE ZONE
14584	9"	Douglas Fir	FENCE ZONE
14585	10"	Douglas Fir	FENCE ZONE
14589	1'-0"	Pacific Madrone	FENCE ZONE
14590	1'-3"	OAK	FENCE ZONE
14591	1'-0"	Pacific Madrone	FENCE ZONE
14592	10"	Pacific Madrone	FENCE ZONE
14593	11"	Douglas Fir	FENCE ZONE
14594	6"	Douglas Fir	FENCE ZONE
14595	7"	Douglas Fir	FENCE ZONE
14596	1'-4"	Douglas Fir	FENCE ZONE
14597	10"	Pacific Madrone	FENCE ZONE
14598	1'-0"	Pacific Madrone	FENCE ZONE
14599	10"	OAK	FENCE ZONE
14600	11"	OAK	FENCE ZONE
14601	8"	Douglas Fir	FENCE ZONE
14602	10"	Douglas Fir	FENCE ZONE
14603	9"	Douglas Fir	FENCE ZONE
14604	8"	Pacific Madrone	FENCE ZONE
14605	6"	Pacific Madrone	FENCE ZONE
14606	9"	Pacific Madrone	FENCE ZONE
14607	10"	Pacific Madrone	FENCE ZONE
14608	1'-0"	Pacific Madrone	FENCE ZONE
14609	6"	Douglas Fir	FENCE ZONE
14610	6"	Douglas Fir	FENCE ZONE
14611	11"	Douglas Fir	FENCE ZONE
14612	1'-1"	Pacific Madrone	FENCE ZONE
14613	1'-0"	Pacific Madrone	FENCE ZONE
14614	1'-1"	Pacific Madrone	FENCE ZONE
14615	6"	Douglas Fir	FENCE ZONE
14616	6"	Douglas Fir	FENCE ZONE
14619	1'-1"	Pacific Madrone	FENCE ZONE
14620	1'-1"	Pacific Madrone	FENCE ZONE
14621	8"	Douglas Fir	FENCE ZONE
14622	1'-0"	Pacific Madrone	FENCE ZONE
14623	6"	BUCKTHORN ??	FENCE ZONE
14624	1'-0"	Pacific Madrone	FENCE ZONE
14626	1'-2"	Pacific Madrone	FENCE ZONE
14627	7"	Pacific Madrone	FENCE ZONE
14628	10"	Pacific Madrone	FENCE ZONE
14629	9"	Pacific Madrone	FENCE ZONE
14630	10"	Pacific Madrone	FENCE ZONE
14631	10"	Pacific Madrone	FENCE ZONE
14632	1'-1"	Pacific Madrone	FENCE ZONE
14633	6"	Douglas Fir	FENCE ZONE
14634	7"	Douglas Fir	FENCE ZONE
14635	8"	Douglas Fir	FENCE ZONE
14636	10"	Douglas Fir	FENCE ZONE
14637	8"	Douglas Fir	FENCE ZONE
14638	8"	Douglas Fir	FENCE ZONE
14639	7"	Douglas Fir	FENCE ZONE
14640	7"	Douglas Fir	FENCE ZONE
14641	6"	Douglas Fir	FENCE ZONE
14642	8"	Douglas Fir	FENCE ZONE
14643	1'-6"	Pacific Madrone	FENCE ZONE
14644	8"	Douglas Fir	FENCE ZONE
14647	7"	Douglas Fir	FENCE ZONE
14648	1'-1"	Pacific Madrone	FENCE ZONE
14649	1'-3"	Pacific Madrone	FENCE ZONE
14650	6"	Douglas Fir	FENCE ZONE
14651	6"	Douglas Fir	FENCE ZONE
14652	10"	Douglas Fir	FENCE ZONE
14653	8"	Douglas Fir	FENCE ZONE
14654	9"	Douglas Fir	FENCE ZONE
14655	7"	Douglas Fir	FENCE ZONE
14656	7"	Douglas Fir	FENCE ZONE
14657	10"	Douglas Fir	FENCE ZONE
14658	8"	Douglas Fir	FENCE ZONE
14659	1'-1"	Pacific Madrone	FENCE ZONE
14660	10"	Douglas Fir	FENCE ZONE
14661	6"	Douglas Fir	FENCE ZONE
14662	8"	Douglas Fir	FENCE ZONE
14663	10"	Douglas Fir	FENCE ZONE
14664	9"	Douglas Fir	FENCE ZONE
14665	11"	Douglas Fir	FENCE ZONE
14666	8"	Douglas Fir	FENCE ZONE
14667	7"	Douglas Fir	FENCE ZONE
14668	11"	Pacific Madrone	FENCE ZONE
14669	10"	Pacific Madrone	FENCE ZONE
14671	7"	Douglas Fir	FENCE ZONE
14673	6"	Pacific Madrone	FENCE ZONE
14674	6"	Douglas Fir	FENCE ZONE
14675	10"	Pacific Madrone	FENCE ZONE
14677	8"	Douglas Fir	FENCE ZONE
14678	6"	Douglas Fir	FENCE ZONE
14679	9"	Douglas Fir	FENCE ZONE
14680	8"	Douglas Fir	FENCE ZONE
14681	7"	Douglas Fir	FENCE ZONE
14682	7"	Douglas Fir	FENCE ZONE
14683	6"	Douglas Fir	FENCE ZONE
14687	6"	BUCKTHORN	FENCE ZONE
14690	6"	Douglas Fir	FENCE ZONE
14691	1'-0"	BIRCH ??	FENCE ZONE
14693	7"	Douglas Fir	FENCE ZONE
14694	7"	Douglas Fir	FENCE ZONE
14695	9"	Douglas Fir	FENCE ZONE
14696	9"	Douglas Fir	FENCE ZONE
14698	7"	Pacific Madrone	FENCE ZONE
14699	9"	Douglas Fir	FENCE ZONE
14700	8"	Douglas Fir	FENCE ZONE
14701	8"	Douglas Fir	FENCE ZONE
14702	6"	Douglas Fir	FENCE ZONE
14703	9"	Douglas Fir	FENCE ZONE
14704	7"	Douglas Fir	FENCE ZONE
14705	7"	Douglas Fir	FENCE ZONE
14706	6"	Douglas Fir	REMOVED
14707	9"	Douglas Fir	REMOVED
14708	9"	Pacific Madrone	REMOVED
14709	6"	Douglas Fir	REMOVED
14710	10"	Douglas Fir	FENCE ZONE
14711	7"	Douglas Fir	FENCE ZONE
14712	8"	Douglas Fir	FENCE ZONE
14713	6"	Douglas Fir	FENCE ZONE
14714	7"	Douglas Fir	FENCE ZONE
14715	7"	Douglas Fir	REMOVED
14716	9"	Douglas Fir	FENCE ZONE
14717	6"	Douglas Fir	REMOVED
14718	10"	Douglas Fir	REMOVED
14719	10"	Douglas Fir	REMOVED
14720	7"	Douglas Fir	REMOVED
14721	10"	Douglas Fir	REMOVED
14722	6"	WILLOW	REMOVED
14723	9"	Douglas Fir	REMOVED
14724	7"	Douglas Fir	REMOVED
14725	11"	Douglas Fir	REMOVED
14726	6"	Douglas Fir	REMOVED
14727	10"	Douglas Fir	REMOVED
14728	7"	Douglas Fir	REMOVED
14729	8"	Douglas Fir	REMOVED
14730	6"	Douglas Fir	REMOVED
14731	10"	Douglas Fir	REMOVED
14732	10"	Douglas Fir	REMOVED
14733	7"	Douglas Fir	REMOVED
14734	10"	Douglas Fir	REMOVED
14735	9"	Douglas Fir	REMOVED
14736	8"	Douglas Fir	REMOVED
14737	1'-1"	Douglas Fir	REMOVED
14738	1'-2"	Douglas Fir	REMOVED
14744	9"	Pacific Madrone	FENCE ZONE
14745	1'-0"	Pacific Madrone	FENCE ZONE
14767	1'-1"	Douglas Fir	FENCE ZONE
14773	7"	Douglas Fir	REMOVED
14774	7"	Douglas Fir	REMOVED
14775	8"	Douglas Fir	REMOVED
14776	8"	Douglas Fir	REMOVED
14777	1'-2"	Bigleaf Maple	REMOVED
14778	11"	Douglas Fir	REMOVED
14779	6"	Douglas Fir	REMOVED
14780	1'-0"	Douglas Fir	REMOVED
14781	8"	Douglas Fir	REMOVED
14783	1'-0"	Douglas Fir	REMOVED
14786	9"	Douglas Fir	REMOVED
14787	11"	Douglas Fir	REMOVED
14788	9"	Douglas Fir	REMOVED
14789	1'-0"	Douglas Fir	REMOVED
14791	1'-3"	Douglas Fir	REMOVED
14796	1'-1"	Douglas Fir	REMOVED
14797	1'-3"	Douglas Fir	REMOVED
14798	7"	Douglas Fir	REMOVED
14799	6"	Douglas Fir	REMOVED
14807	11"	Douglas Fir	REMOVED
14830	1'-1"	Douglas Fir	FENCE ZONE
14831	6"	Douglas Fir	FENCE ZONE
14834	1'-3"	Douglas Fir	FENCE ZONE
14836	10"	Douglas Fir	FENCE ZONE
14837	11"	Douglas Fir	FENCE ZONE
14838	1'-2"	Douglas Fir	FENCE ZONE
14844	8"	Douglas Fir	FENCE ZONE
14845	11"	Douglas Fir	FENCE ZONE
14849	1'-10"	OAK	FENCE ZONE
14855	9"	Pacific Madrone	FENCE ZONE
14856	1'-0"	Pacific Madrone	FENCE ZONE
14857	7"	Pacific Madrone	FENCE ZONE
14858	1'-1"	Douglas Fir	REMOVED
14861	11"	Pacific Madrone	REMOVED
14862	11"	Pacific Madrone	REMOVED
14875	9"	Douglas Fir	REMOVED
14876	7"	Douglas Fir	FENCE ZONE
14878	6"	Douglas Fir	FENCE ZONE
14879	1'-1"	Pacific Madrone	FENCE ZONE
14880	1'-9"	Douglas Fir	FENCE ZONE
14884	8"	Oregon White Oak	FENCE ZONE
14892	1'-1"	Pacific Madrone	REMOVED
14898	8"	Bigleaf Maple	REMOVED
14901	10"	Hooker Willow	REMOVED
14906	1'-2"	Douglas Fir	REMOVED
14907	1'-1"	Douglas Fir	REMOVED
14908	11"	Douglas Fir	REMOVED
14924	1'-5"	Hooker Willow	FENCE ZONE
14927	1'-3"	Douglas Fir	FENCE ZONE
14928	11"	Douglas Fir	FENCE ZONE
14929	1'-6"	Douglas Fir	FENCE ZONE
14930	1'-5"	Douglas Fir	REMOVED
14932	1'-4"	Douglas Fir	REMOVED
14933	2'-0"	Douglas Fir	REMOVED
14948	8"	Pacific Madrone	REMOVED
14953	1'-5"	Douglas Fir	REMOVED
14958	1'-0"	Douglas Fir	REMOVED
14960	1'-1"	Douglas Fir	REMOVED
14961	8"	Douglas Fir	REMOVED
14963	1'-5"	Douglas Fir	REMOVED
14964	9"	Douglas Fir	REMOVED
14965	10"	Douglas Fir	REMOVED
14966	6"	Douglas Fir	REMOVED
14967	1'-1"	Douglas Fir	REMOVED
14968	10"	Douglas Fir	REMOVED
14969	11"	Douglas Fir	REMOVED
14970	6"	Douglas Fir	REMOVED
14971	10"	Douglas Fir	REMOVED
14973	1'-1"	Douglas Fir	REMOVED
14974	11"	Douglas Fir	REMOVED
14975	10"	Douglas Fir	REMOVED
14976	7"	Douglas Fir	REMOVED
14977	7"	Douglas Fir	REMOVED
14978	6"	Douglas Fir	REMOVED
14979	6"	Douglas Fir	REMOVED
14980	9"	Douglas Fir	REMOVED
14981	1'-0"	Douglas Fir	REMOVED
14982	11"	Douglas Fir	FENCE ZONE
14983	6"	Douglas Fir	REMOVED
14984	8"	Douglas Fir	REMOVED
14985	1'-0"	Douglas Fir	REMOVED
14986	9"	Douglas Fir	REMOVED
14987	6"	Douglas Fir	REMOVED
14988	9"	Douglas Fir	REMOVED
14989	1'-0"	Douglas Fir	REMOVED
14990	1'-2"	Douglas Fir	REMOVED
14993	1'-0"	Douglas Fir	REMOVED
14994	10"	Douglas Fir	REMOVED
14995	1'-0"	Douglas Fir	REMOVED
14997	10"	Douglas Fir	REMOVED
14998	11"	Douglas Fir	REMOVED
15000	11"	Pacific Madrone	FENCE ZONE
15001	1'-9"	Oregon White Oak	FENCE ZONE
15002	6"	Douglas Fir	FENCE ZONE
15003	6"	Douglas Fir	FENCE ZONE
15004	6"	Douglas Fir	FENCE ZONE
15005	1'-11"	Douglas Fir	FENCE ZONE
15006	10"	Douglas Fir	FENCE ZONE
15007	1'-4"	Pacific Madrone	FENCE ZONE
15008	1'-4"	Pacific Madrone	FENCE ZONE
15009	8"	Pacific Madrone	FENCE ZONE
15010	6"	Douglas Fir	FENCE ZONE
15011	6"	Douglas Fir	FENCE ZONE
15012	6"	Douglas Fir	FENCE ZONE
15013	1'-1"	Douglas Fir	FENCE ZONE
15014	8"	Douglas Fir	FENCE ZONE
15015	7"	Common Hawthorn	FENCE ZONE
15016	1'-1"	Pacific Madrone	FENCE ZONE
15017	1'-10"	Pacific Madrone	FENCE ZONE
15018	1'-0"	Pacific Madrone	FENCE ZONE
15019	1'-4"	Pacific Madrone	FENCE ZONE
15020	1'-1"	Pacific Madrone	FENCE ZONE
15021	9"	Douglas Fir	FENCE ZONE
15022	9"	Douglas Fir	FENCE ZONE
15023	8"	Douglas Fir	FENCE ZONE
15024	6"	Douglas Fir	FENCE ZONE
15025	8"	Douglas Fir	FENCE ZONE
15026	9"	Douglas Fir	FENCE ZONE
15027	1'-2"	Douglas Fir	FENCE ZONE
15028	7"	Douglas Fir	FENCE ZONE
15029	1'-3"	Douglas Fir	FENCE ZONE
15030	6"	Douglas Fir	FENCE ZONE
15031	1'-0"	Douglas Fir	FENCE ZONE
15032	7"	Douglas Fir	FENCE ZONE
15033	1'-4"	Pacific Madrone	FENCE ZONE
15034	1'-6"	Pacific Madrone	FENCE ZONE
15035	6"	Douglas Hawthorn	FENCE ZONE
15036	7"	Douglas Fir	FENCE ZONE
15037	1'-4"	Pacific Madrone	FENCE ZONE
15038	11"	Pacific Madrone	FENCE ZONE
15039	8"	Douglas Fir	FENCE ZONE
15040	7"	Douglas Fir	FENCE ZONE
15041	7"	Douglas Fir	FENCE ZONE
15042	7"	Douglas Fir	FENCE ZONE
15043	11"	Douglas Fir	FENCE ZONE
15044	8"	Pacific Madrone	FENCE ZONE
15045	1'-0"	Pacific Madrone	FENCE ZONE
15046	1'-1"	Pacific Madrone	FENCE ZONE
15047	6"	Douglas Fir	FENCE ZONE
15048	6"	Douglas Fir	FENCE ZONE
15049	7"	Douglas Fir	FENCE ZONE
15050	9"	Douglas Fir	FENCE ZONE
15051	11"	Douglas Fir	FENCE ZONE
15052	10"	Pacific Madrone	FENCE ZONE
15053	7"	Douglas Fir	FENCE ZONE
15054	6"	Douglas Fir	FENCE ZONE
15055	9"	Douglas Fir	FENCE ZONE
15056	1'-0"	Douglas Fir	FENCE ZONE
15057	6"	Douglas Fir	FENCE ZONE
15058	9"	Douglas Fir	FENCE ZONE
15059	1'-0"	Pacific Madrone	FENCE ZONE
15060	8"	Douglas Fir	FENCE ZONE
15061	1'-0"	Pacific Madrone	FENCE ZONE
15062	6"	Douglas Fir	FENCE ZONE
15063	10"	Douglas Fir	FENCE ZONE
15064	7"	Douglas Fir	FENCE ZONE
15065	10"	Pacific Madrone	FENCE ZONE
15066	1'-0"	Pacific Madrone	FENCE ZONE
15067	1'-0"	Pacific Madrone	FENCE ZONE
15068	9"	Pacific Madrone	FENCE ZONE
15069	6"	Pacific Madrone	FENCE ZONE
15070	1'-0"	Pacific Madrone	FENCE ZONE
15071	8"	Pacific Madrone	FENCE ZONE
15073	7"	Pacific Madrone	FENCE ZONE
15074	10"	Pacific Madrone	FENCE ZONE
15075	6"	PINE	FENCE ZONE
15076	8"	Douglas Fir	FENCE ZONE
15077	6"	Douglas Fir	FENCE ZONE
15078	6"	Douglas Fir	FENCE ZONE
15079	7"	Douglas Fir	FENCE ZONE
15080	1'-3"	Douglas Fir	FENCE ZONE
15081	11"	Pacific Madrone	FENCE ZONE
15082	10"	Pacific Madrone	FENCE ZONE
15083	9"	Douglas Fir	FENCE ZONE
15084	8"	Douglas Fir	FENCE ZONE
15085	10"	Douglas Fir	FENCE ZONE
15086	9"	Douglas Fir	FENCE ZONE
15087	11"	Pacific Madrone	FENCE ZONE
15088	1'-1"	Pacific Madrone	FENCE ZONE
15089	1'-2"	Douglas Fir	FENCE ZONE
15090	1'-0"	Pacific Madrone	FENCE ZONE
15091	7"	Douglas Fir	FENCE ZONE
15092	8"	Douglas Fir	FENCE ZONE
15093	9"	Douglas Fir	FENCE ZONE
15094	6"	HOLLY	FENCE ZONE
15095	8"	HEMLOCK	FENCE ZONE
15096	9"	Pacific Madrone	FENCE ZONE
15097	8"	Pacific Madrone	FENCE ZONE
15098	9"	Douglas Fir	FENCE ZONE
15099	9"	Douglas Fir	FENCE ZONE
15100	7"	Douglas Fir	FENCE ZONE
15101	8"	Douglas Fir	FENCE ZONE
15102	9"	Douglas Fir	FENCE ZONE
15103	6"	Douglas Fir	FENCE ZONE
15104	7"	Douglas Fir	FENCE ZONE
15105	7"	Douglas Fir	FENCE ZONE
15106	8"	Douglas Fir	FENCE ZONE
15107	6"	Douglas Fir	FENCE ZONE
15108	6"	Douglas Fir	FENCE ZONE
15109	1'-1"	Douglas Fir	FENCE ZONE
15110	8"	Douglas Fir	FENCE ZONE
15111	9"	Douglas Fir	FENCE ZONE
15112	8"	Pacific Madrone	FENCE ZONE
15113	6"	Douglas Fir	FENCE ZONE
15114	8"	Pacific Madrone	FENCE ZONE
15115	11"	Pacific Madrone	FENCE ZONE
15116	7"	Douglas Fir	FENCE ZONE
15117	1'-2"	Douglas Fir	FENCE ZONE
15118	6"	Douglas Fir	FENCE ZONE
15119	6"	Douglas Fir	FENCE ZONE
15121	7"	Douglas Fir	FENCE ZONE
15122	7"	Douglas Fir	FENCE ZONE
15123	7"	Douglas Fir	FENCE ZONE
15124	10"	Pacific Madrone	FENCE ZONE
15125	9"	Douglas Fir	FENCE ZONE
15126	6"	Douglas Fir	FENCE ZONE
15129	9"	Douglas Fir	FENCE ZONE
15130	7"	Douglas Fir	FENCE ZONE
15131	1'-2"	Pacific Madrone	FENCE ZONE
15132	6"	Douglas Fir	FENCE ZONE
15133	10"	Douglas Fir	FENCE ZONE
15134	11"	Douglas Fir	FENCE ZONE
15135	8"	Douglas Fir	FENCE ZONE
15136	6"	Douglas Fir	FENCE ZONE
15137	10"	Douglas Fir	FENCE ZONE
15138	1'-3"	Douglas Fir	FENCE ZONE
15143	7"	Douglas Fir	FENCE ZONE
15144	7"	Douglas Fir	FENCE ZONE
15145	11"	Pacific Madrone	FENCE ZONE
15146	9"	Douglas Fir	FENCE ZONE
15147	11"	Pacific Madrone	FENCE ZONE
15148	6"	Pacific Madrone	FENCE ZONE
15149	1'-0"	Douglas Fir	FENCE ZONE
15150	8"	Douglas Fir	FENCE ZONE
15151	9"	Douglas Fir	FENCE ZONE
15152	1'-2"	Douglas Fir	FENCE ZONE
15153	8"	Douglas Fir	FENCE ZONE
15154	8"	Douglas Fir	FENCE ZONE
15155	10"	Douglas Fir	FENCE ZONE
15156	11"	Douglas Fir	FENCE ZONE
15157	11"	Douglas Fir	FENCE ZONE
15158	9"	Douglas Fir	FENCE ZONE
15159	9"	Douglas Fir	FENCE ZONE
15160	11"	Douglas Fir	FENCE ZONE
15161	9"	Douglas Fir	FENCE ZONE
15162	1'-0"	Douglas Fir	FENCE ZONE
15163	1'-0"	Douglas Fir	FENCE ZONE
15164	11"	Douglas Fir	FENCE ZONE
15165	11"	Douglas Fir	FENCE ZONE
15166	1'-0"	Douglas Fir	FENCE ZONE
15167	10"	Douglas Fir	FENCE ZONE
15168	6"	Douglas Fir	FENCE ZONE
15169	8"	Douglas Fir	FENCE ZONE
15170	6"	Douglas Fir	FENCE ZONE
15171	8"	Douglas Fir	FENCE ZONE
15172	10"	Douglas Fir	FENCE ZONE
15173	1'-2"	Douglas Fir	FENCE ZONE
15175	11"	Pacific Madrone	FENCE ZONE
15176	6"	Pacific Madrone	FENCE ZONE
15177	9"	Douglas Fir	FENCE ZONE
15178	6"	Douglas Fir	FENCE ZONE
15179	6"	Pacific Madrone	FENCE ZONE
15181	1'-2"	Pacific Madrone	FENCE ZONE
15182	8"	Douglas Fir	FENCE ZONE
15183	8"	Douglas Fir	FENCE ZONE
15184	9"	Douglas Fir	FENCE ZONE
15185	11"	Douglas Fir	FENCE ZONE
15186	9"	Douglas Fir	FENCE ZONE
15187	7"	Douglas Fir	FENCE ZONE
15188	7"	Douglas Fir	FENCE ZONE
15189	9"	Douglas Fir	FENCE ZONE
15190	11"	Douglas Fir	FENCE ZONE
15191	6"	Douglas Fir	FENCE ZONE
15192	6"	Douglas Fir	FENCE ZONE
15193	11"	Douglas Fir	FENCE ZONE
15194	9"	Douglas Fir	FENCE ZONE
15195	9"	Douglas Fir	FENCE ZONE
15196	7"	Douglas Fir	FENCE ZONE
15200	6"	Pacific Madrone	FENCE ZONE
15201	11"	OAK	FENCE ZONE
15202	7"	Pacific Madrone	FENCE ZONE
15203	11"	Pacific Madrone	FENCE ZONE
15204	10"	Douglas Fir	FENCE ZONE
15205	9"	Douglas Fir	FENCE ZONE
15206	1'-1"	Douglas Fir	FENCE ZONE
15207	11"	Douglas Fir	FENCE ZONE
15208	7"	Douglas Fir	FENCE ZONE
15209	1'-0"	Douglas Fir	FENCE ZONE
15210	1'-2"	Douglas Fir	FENCE ZONE
15211	1'-1"	Douglas Fir	FENCE ZONE
15212	1'-2"	Douglas Fir	FENCE ZONE
15213	1'-0"	Douglas Fir	FENCE ZONE
15214	10"	Douglas Fir	FENCE ZONE
15215	11"	Douglas Fir	FENCE ZONE
15216	10"	Douglas Fir	FENCE ZONE
15217	10"	Douglas Fir	FENCE ZONE
15218	10"	Douglas Fir	FENCE ZONE
15219	8"	Douglas Fir	FENCE ZONE
15220	10"	Douglas Fir	FENCE ZONE
15221	1'-0"	Douglas Fir	FENCE ZONE
15222	10"	Douglas Fir	FENCE ZONE
15223	9"	Douglas Fir	FENCE ZONE
15226	1'-1"	Douglas Fir	FENCE ZONE
15227	10"	Douglas Fir	FENCE ZONE
15228	10"	Douglas Fir	FENCE ZONE
15229	11"	Douglas Fir	FENCE ZONE
15230	11"	Douglas Fir	FENCE ZONE
15231	11"	Douglas Fir	FENCE ZONE
15232	1'-2"	Douglas Fir	FENCE ZONE
15233	11"	Douglas Fir	FENCE ZONE
15234	6"	Douglas Fir	FENCE ZONE
15235	10"	Douglas Fir	FENCE ZONE
15236	1'-0"	Douglas Fir	FENCE ZONE
15237	11"	Douglas Fir	FENCE ZONE
15238	11"	Douglas Fir	FENCE ZONE
15239	1'-0"	Douglas Fir	FENCE ZONE
15240	8"	Douglas Fir	FENCE ZONE
15241	1'-1"	Douglas Fir	FENCE ZONE
15242	1'-1"	Douglas Fir	FENCE ZONE
15243	7"	Douglas Fir	FENCE ZONE
15244	1'-0"	Douglas Fir	FENCE ZONE
15245	8"	Douglas Fir	FENCE ZONE
15248	1'-1"	Douglas Fir	FENCE ZONE
15250	8"	Douglas Fir	FENCE ZONE
15251	7"	Douglas Fir	FENCE ZONE
15252	11"	Douglas Fir	FENCE ZONE
15253	6"	Douglas Fir	FENCE ZONE
15254	6"	Douglas Fir	FENCE ZONE
15255	9"	Douglas Fir	FENCE ZONE
15256	1'-6"	Douglas Fir	FENCE ZONE
15269	1'-0"	Douglas Fir	FENCE ZONE
15270	11"	Douglas Fir	FENCE ZONE
15271	11"	Pacific Madrone	FENCE ZONE
15272	9"	Douglas Fir	FENCE ZONE
15273	9"	Douglas Fir	FENCE ZONE
15274	6"	DECIDUOUS	FENCE ZONE
15275	6"	Douglas Fir	FENCE ZONE
15276	6"	DECIDUOUS	FENCE ZONE
15277	11"	Douglas Fir	FENCE ZONE
15278	6"	Douglas Fir	FENCE ZONE
15279	7"	Douglas Fir	FENCE ZONE
15280	9"	Pacific Madrone	FENCE ZONE
15281	8"	Douglas Fir	FENCE ZONE
15282	1'-5"	Douglas Fir	FENCE ZONE
15283	1'-3"	Douglas Fir	FENCE ZONE
15284	1'-2"	Douglas Fir	REMOVED
15285	10"	Douglas Fir	REMOVED
15286	9"	Douglas Fir	FENCE ZONE
15287	9"	Douglas Fir	FENCE ZONE
15288	7"	Douglas Fir	FENCE ZONE
15289	6"	Douglas Fir	FENCE ZONE
15290	6"	Douglas Fir	FENCE ZONE
15291	9"	Douglas Fir	FENCE ZONE
15293	10"	Douglas Fir	FENCE ZONE
15294	6"	Douglas Fir	FENCE ZONE
15295	11"	Douglas Fir	FENCE ZONE
15296	11"	Douglas Fir	FENCE ZONE
15297	7"	Douglas Fir	FENCE ZONE
15298	10"	Douglas Fir	FENCE ZONE
15299	8"	Douglas Fir	FENCE ZONE
15300	7"	Douglas Fir	FENCE ZONE
15301	6"	Douglas Fir	FENCE ZONE
15302	1'-0"	Douglas Fir	FENCE ZONE
15303	8"	Douglas Fir	REMOVED
15304	11"	Douglas Fir	FENCE ZONE
15305	8"	Douglas Fir	FENCE ZONE
15306	7"	Douglas Fir	FENCE ZONE
15307	11"	Douglas Fir	FENCE ZONE
15308	10"	Douglas Fir	FENCE ZONE
15309	8"	Douglas Fir	FENCE ZONE
15316	11"	Douglas Fir	FENCE ZONE
15317	9"	Douglas Fir	FENCE ZONE
15318	7"	Douglas Fir	FENCE ZONE
15319	9"	Douglas Fir	FENCE ZONE
15320	8"	Douglas Fir	REMOVED
15321	10"	Douglas Fir	REMOVED
15322	9"	Douglas Fir	REMOVED
15323	6"	Douglas Fir	REMOVED
15324	10"	Douglas Fir	REMOVED
15325	7"	Douglas Fir	REMOVED
15326	6"	Douglas Fir	REMOVED
15327	10"	Douglas Fir	REMOVED
15328	11"	Douglas Fir	REMOVED
15329	11"	Douglas Fir	REMOVED
15330	11"	Douglas Fir	REMOVED
15331	1'-0"	Douglas Fir	REMOVED
15332	7"	Douglas Fir	REMOVED
15333	1'-0"	Douglas Fir	REMOVED
15334	8"	Douglas Fir	REMOVED
15335	6"	DECIDUOUS	REMOVED
15338	1'-2"	Pacific Madrone	FENCE ZONE
15341	1'-1"	Douglas Fir	FENCE ZONE
15342	1'-1"	Douglas Fir	FENCE ZONE
15346	11"	Douglas Fir	FENCE ZONE
15347	1'-2"	Douglas Fir	FENCE ZONE
15348	11"	Douglas Fir	FENCE ZONE
15352	10"	Douglas Fir	FENCE ZONE
16000	6"	Douglas Fir	REMOVED
16001	6"	Douglas Fir	REMOVED
16002	1'-1"	Douglas Fir	REMOVED
16003	8"	Douglas Fir	REMOVED
16004	1'-0"	Douglas Fir	REMOVED
16005	11"	Douglas Fir	REMOVED
16006	10"	Douglas Fir	REMOVED
16007	1'-0"	Douglas Fir	REMOVED
16008	9"	Douglas Fir	REMOVED
16009	1'-0"	Douglas Fir	REMOVED
16010	11"	Douglas Fir	REMOVED
16013	11"	Douglas Fir	REMOVED
16014	1'-4"	Douglas Fir	REMOVED
16015	11"	Douglas Fir	REMOVED
16016	1'-0"	Douglas Fir	REMOVED
16017	1'-3"	Douglas Fir	REMOVED
16018	1'-3"	Douglas Fir	REMOVED
16019	10"	Douglas Fir	REMOVED
16021	1'-4"	Douglas Fir	REMOVED
16022	11"	Douglas Fir	REMOVED
16023	10"	Douglas Fir	REMOVED
16024	1'-3"	Douglas Fir	REMOVED
16025	1'-0"	Douglas Fir	REMOVED
16026	11"	Douglas Fir	REMOVED
16027	1'-0"	Douglas Fir	REMOVED
16028	10"	Douglas Fir	REMOVED
16029	1'-1"	Douglas Fir	REMOVED
16030	7"	Douglas Fir	REMOVED
16031	11"	Douglas Fir	REMOVED
16032	10"	Douglas Fir	REMOVED
16038	9"	Douglas Fir	REMOVED
16051	10"	Douglas Fir	REMOVED
16052	1'-0"	Douglas Fir	REMOVED
16053	8"	Douglas Fir	REMOVED
16058	1'-1"	Douglas Fir	MOVABLE
16061	10"	Douglas Fir	MOVABLE
16066	1'-4"	Douglas Fir	FENCE ZONE
16067	1'-4"	Douglas Fir	MOVABLE
16069	1'-2"	Douglas Fir	FENCE ZONE
16070	11"	Douglas Fir	FENCE ZONE
16071	8"	Douglas Fir	FENCE ZONE
16072	1'-3"	Douglas Fir	FENCE ZONE
16073	1'-0"	Douglas Fir	FENCE ZONE
16074	9"	Douglas Fir	FENCE ZONE
16075	10"	Douglas Fir	REMOVED
16076	1'-1"	Douglas Fir	REMOVED
16077	9"	Douglas Fir	FENCE ZONE
16079	1'-1"	Douglas Fir	REMOVED
16080	1'-1"	Douglas Fir	FENCE ZONE
16081	1'-2"	Douglas Fir	FENCE ZONE
16082	1'-2"	Douglas Fir	FENCE ZONE
16084	7"	Douglas Fir	REMOVED
16085	11"	Douglas Fir	REMOVED
16086	1'-1"	Douglas Fir	REMOVED
16089	1'-3"	Douglas Fir	REMOVED
16090	8"	Hooker Willow	REMOVED
16093	1'-0"	Douglas Fir	REMOVED
16094	11"	Douglas Fir	REMOVED
16095	1'-1"	Douglas Fir	REMOVED
16096	1'-4"	Douglas Fir	REMOVED
16123	1'-1"	Douglas Fir	MOVABLE
16136	1'-1"	Douglas Fir	FENCE ZONE
16137	1'-3"	Douglas Fir	FENCE ZONE
16138	1'-1"	Douglas Fir	FENCE ZONE
16140	7"	Douglas Fir	FENCE ZONE
16141	1'-2"	Douglas Fir	FENCE ZONE
16148	1'-0"	Douglas Fir	FENCE ZONE
16149	6"	Pacific Madrone	FENCE ZONE
16150	10"	Pacific Madrone	FENCE ZONE
16151	11"	Douglas Fir	FENCE ZONE
16152	1'-0"	Douglas Fir	FENCE ZONE
16154	1'-2"	Douglas Fir	FENCE ZONE
16156	1'-0"	Douglas Fir	FENCE ZONE
16159	7"	Pacific Madrone	FENCE ZONE
16164	9"	Douglas Fir	FENCE ZONE
16164B	8"	Pacific Madrone	REMOVED
16178	8"	Pacific Madrone	FENCE ZONE
16205	1'-1"	Douglas Fir	MOVABLE
16207	1'-2"	Douglas Fir	FENCE ZONE
16208	11"	Douglas Fir	MOVABLE
16209	1'-1"	Douglas Fir	REMOVED
16213	1'-0"	Douglas Fir	REMOVED
16215	1'-3"	Douglas Fir	FENCE ZONE
16216	1'-1"	Douglas Fir	FENCE ZONE
16217	11"	Douglas Fir	FENCE ZONE
16218	1'-1"	Douglas Fir	FENCE ZONE
16219	1'-3"	Pacific Madrone	FENCE ZONE
16242	1'-1"	Douglas Fir	FENCE ZONE
16243	1'-6"	Douglas Fir	FENCE ZONE
16245	1'-2"	Douglas Fir	FENCE ZONE
16246	11"	Hooker Willow	FENCE ZONE
16248	1'-3"	Douglas Fir	FENCE ZONE
16249	1'-2"	Douglas Fir	FENCE ZONE
16250	1'-1"	Douglas Fir	FENCE ZONE
16251	1'-1"	Douglas Fir	REMOVED
16255	1'-1"	Douglas Fir	REMOVED
16256	10"	Douglas Fir	REMOVED
16257	1'-2"	Douglas Fir	REMOVED
16258	1'-0"	Douglas Fir	REMOVED
16259	6"	Douglas Fir	REMOVED
16260	8"	Douglas Fir	REMOVED
16261	1'-1"	Douglas Fir	REMOVED
16263	1'-3"	Douglas Fir	REMOVED
16264	1'-0"	Douglas Fir	REMOVED
16267	1'-0"	Douglas Fir	FENCE ZONE
16268	1'-2"	Douglas Fir	REMOVED
16271	1'-1"	Douglas Fir	REMOVED
16272	11"	Douglas Fir	REMOVED
16273	1'-2"	Bird Cherry	REMOVED
16274	11"	Douglas Fir	REMOVED
16277	11"	Douglas Fir	REMOVED
16285	1'-6"	Pacific Madrone	REMOVED
16289	1'-1"	Bird Cherry	FENCE ZONE
16291	1'-4"	Douglas Fir	FENCE ZONE
16293	1'-2"	Douglas Fir	FENCE ZONE
16298	1'-7"	Douglas Fir	FENCE ZONE
16302	1'-3"	Douglas Fir	FENCE ZONE
16322	1'-6"	Douglas Fir	FENCE ZONE
16323	1'-2"	Douglas Fir	FENCE ZONE
16324	1'-0"	Douglas Fir	FENCE ZONE
16335	1'-1"	Douglas Fir	FENCE ZONE
16336	8"	Bird Cherry	FENCE ZONE
16341	9"	Pacific Madrone	FENCE ZONE
16354	1'-0"	Douglas Fir	FENCE ZONE
16355	1'-0"	Douglas Fir	REMOVED
16356	1'-0"	Douglas Fir	FENCE ZONE
16357	1'-0"	Douglas Fir	FENCE ZONE
16358	8"	Douglas Fir	FENCE ZONE
16359	8"	Douglas Fir	FENCE ZONE
16360	1'-1"	Douglas Fir	FENCE ZONE
16361	1'-0"	Douglas Fir	FENCE ZONE
16727B	1'-3"	Douglas Fir	REMOVED
20048	1'-1"	Douglas Fir	FENCE ZONE
20049	1'-5"	Douglas Fir	FENCE ZONE
20051	1'-2"	Douglas Fir	FENCE ZONE
20053	1'-0"	Douglas Fir	FENCE ZONE
20055	1'-2"	Douglas Fir	FENCE ZONE
20059	10"	Douglas Fir	FENCE ZONE
20060	11"	Douglas Fir	FENCE ZONE
20061	10"	Douglas Fir	FENCE ZONE
20268	1'-9"	Douglas Fir	MOVABLE
21188	1'-2"	Douglas Fir	REMOVED
21189	2'-7"	Douglas Fir	REMOVED
21193	3'-7"	Douglas Fir	GENERAL
21196	3'-6"	Douglas Fir	GENERAL
22146	3'-8"	Douglas Fir	REMOVED
22183	1'-11"	Evergreen Magnolia	REMOVED
22184	1'-9"	Apple	REMOVED
22197	5"	Witch Hazel	FENCE ZONE
22201	10"	Black Walnut	FENCE ZONE
22204	2'-1"	Black Walnut	FENCE ZONE
22236	1'-6"	Silver Maple	FENCE ZONE
22237	3'-11"	Northern Red Oak	FENCE ZONE
22238	2'-2"	Silver Maple	FENCE ZONE
22239	2'-0"	Silver Maple	FENCE ZONE
22240	3'-1"	Willow species	FENCE ZONE
22241	2'-0"	Silver Maple	FENCE ZONE
22242	1'-1"	Linden species	FENCE ZONE
22243	1'-4"	European White Birch	FENCE ZONE

PROTECTION TYPES

FENCE ZONE - EXISTING TREE TO REMAIN WITHIN A PERIMETER FENCE AROUND A CLUSTER OF TREES PER PER 1/MG-L553

GENERAL - EXISTING TREE TO REMAIN WITHIN A CHAINLINK FENCE AROUND ITS INDIVIDUAL DRIP ZONE PER PER 1/MG-L553

MOVABLE - EXISTING TREE TO REMAIN WITHIN A REMOVABLE ORANGE CONSTRUCTION FENCE AROUND ITS DRIP ZONE PER PER 2/MG-L553

REMOVED - EXISTING TREE TO BE REMOVED DUE TO DEVELOPMENT IMPACT OR HEALTH/HAZARD CONCERNS

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10/31/19

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EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

REVISIONS

CHECKED BY: DJ
ISSUE DATE: 03 JUNE 2019
PROJECT NO: 1801003

EXISTING TREE TABLE

MG-L560

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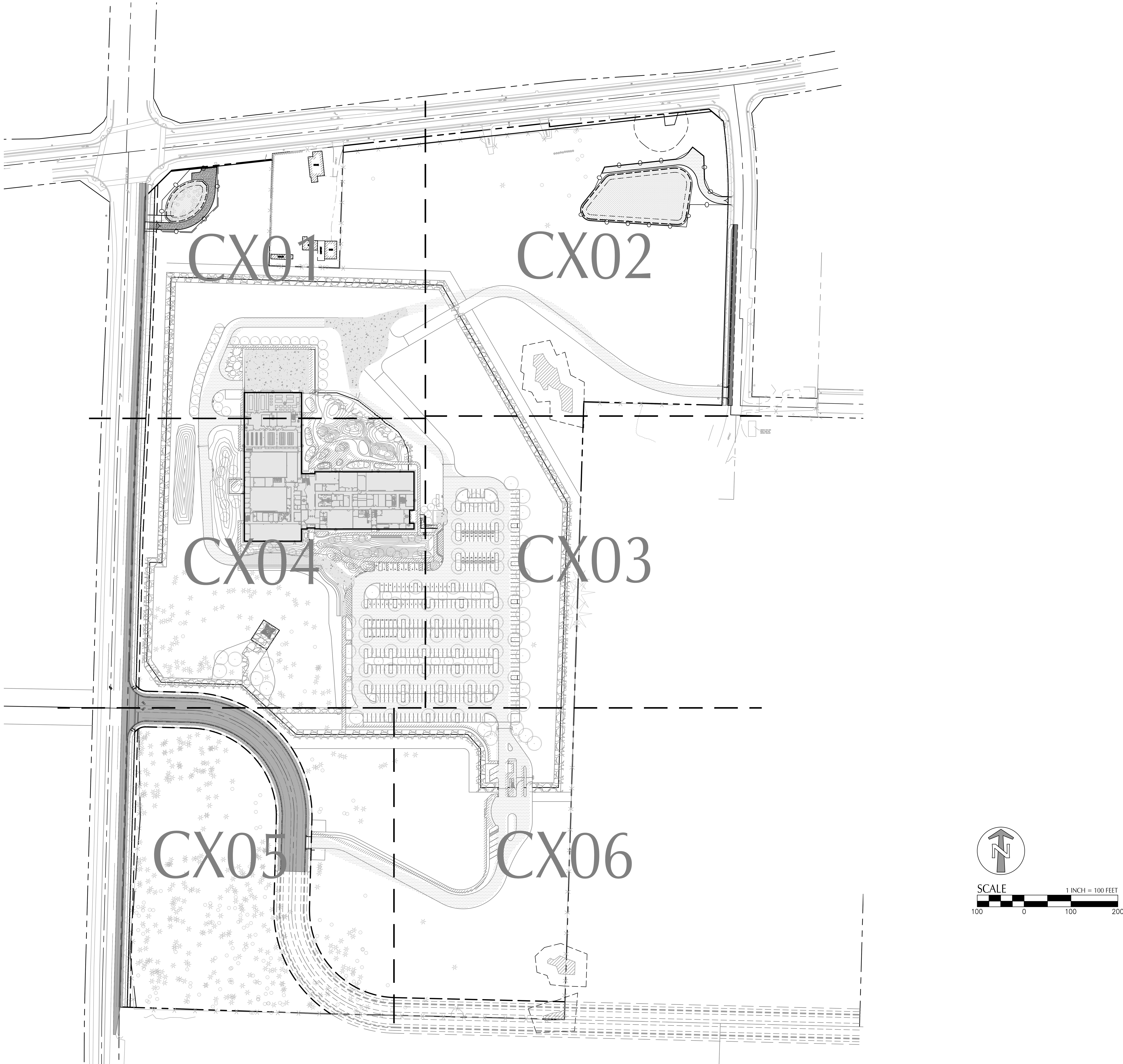
5/31/2019 1:12:51 PM



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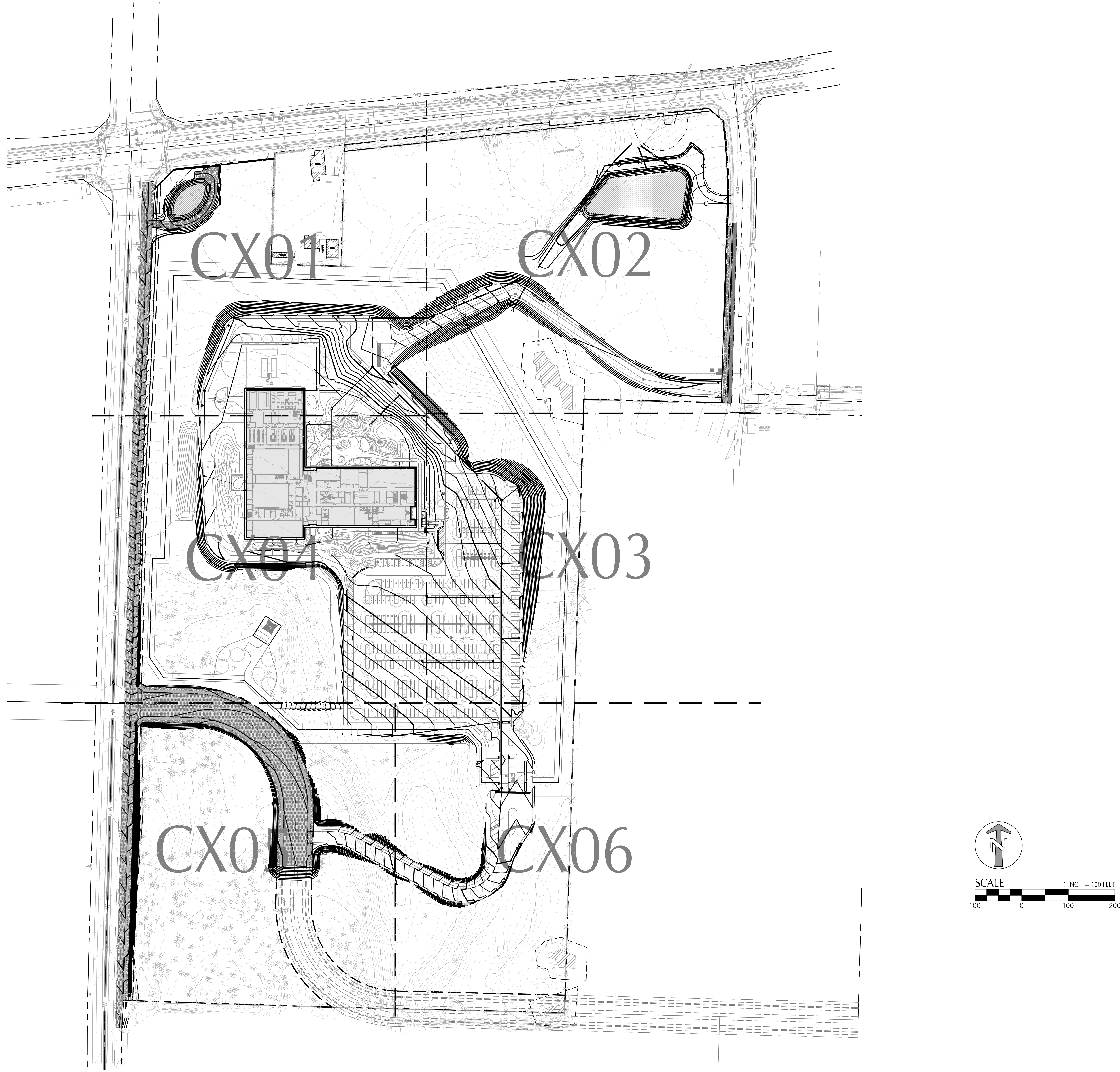
REVISIONS

CHECKED BY:	MR
ISSUE DATE:	3 JUNE 2019
PROJECT NO:	P18-003

OVERALL SITE PLAN

MG C300

EXCAVATION, GRADING, AND EROSION CONTROL PERMITS



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EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

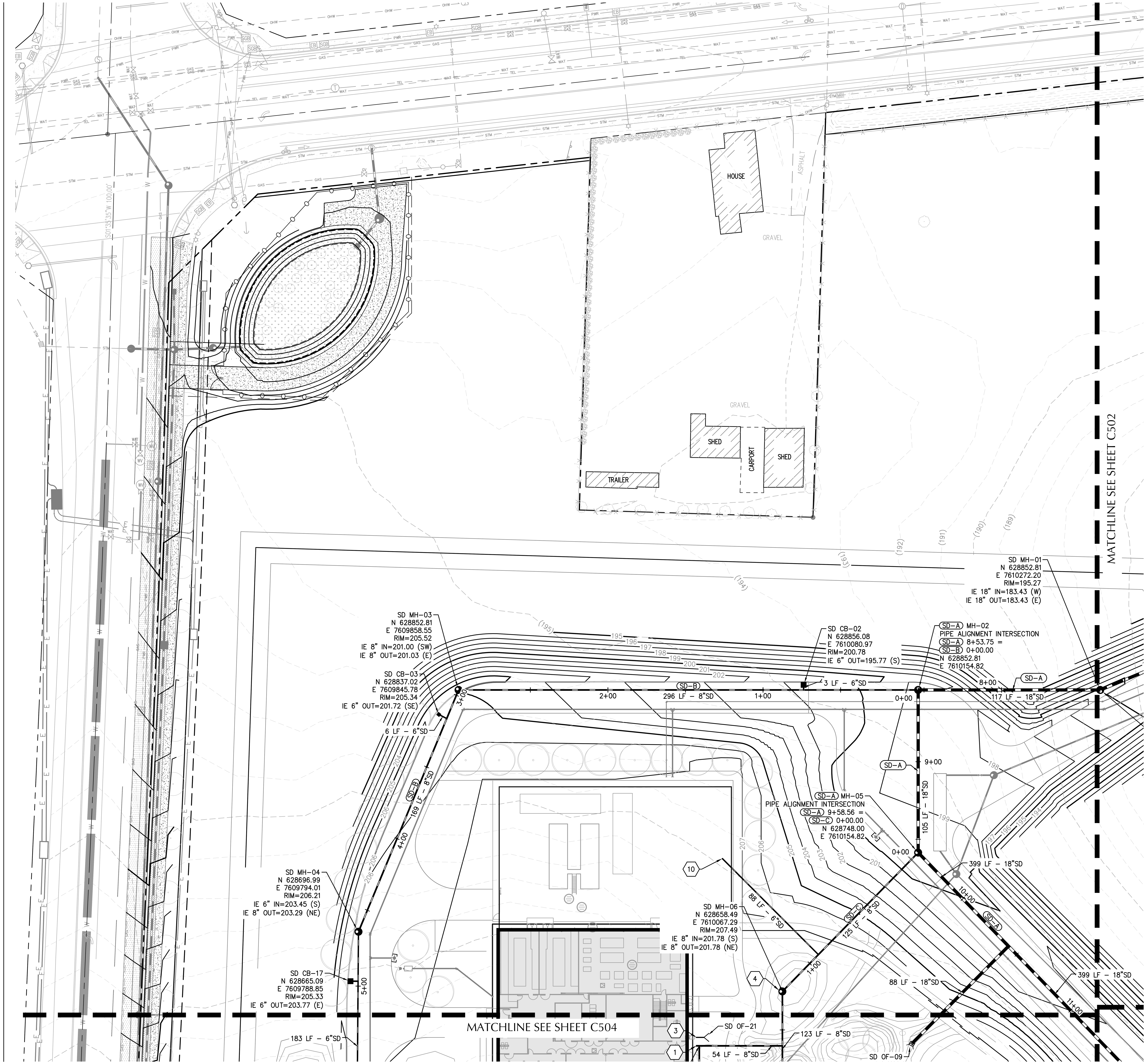
REVISIONS

CHECKED BY:	MR
ISSUE DATE:	3 JUNE 2019
PROJECT NO:	P18-003

OVERALL STORM DRAINAGE PLAN

MG C500

File: N:\c\p\2018\1800045-PGE-Integrated-Operations-Center\CAD\PLOT\8045-C500-STRM-OVERALL.dwg TAB:C500
Plotted: 5/31/19 at 1:42pm By: JSweeney
3/11/2019 9:59:29 AM SERA Design and Architecture, Inc.



SHEET NOTES

1. WHEN PIPE COVER BECOMES LESS THAN 2-FT, PIPE MATERIAL SHALL BE DUCTILE IRON PIPE.
2. INSTALL PIPE BEDDING AND BACKFILL FOR ALL UTILITIES PER DETAIL 5/C802.
3. SEE C650 FOR FOUNDATION AND UNDERSLAB DRAINAGE.
4. INSTALL 4" PLASTIC CLEANOUTS ALONG LENGTH OF PERFORATED PIPE AT 100FT O.C. MAXIMUM AND AT ALL BENDS.

(X) KEY NOTES

#	DESCRIPTION	DETAIL REF.
1	ROOF DRAIN CONNECTION. SEE PLUMBING FOR CONTINUATION	
2	INSTALL 45 DEGREE WYE	
3	CONNECT STORM DRAINAGE TO UNDERSLAB DRAINAGE. ADD EXTENDABLE BACKWATER VALVE	5/C805
4	CONNECT UNDERSLAB DRAINAGE TO MANHOLE	
5	CONSTRUCT DRAINAGE SWALE TO STORMWATER FACILITY	
6	CONNECT ROOF DRAIN TO OUTFALL IN WATER FEATURE	
7	CONSTRUCT RIPRAP PROTECTION FOR STORMWATER INLET/OUTLET	9/C802
8	CONTRACTOR TO POTHOLE TILE DRAIN LINE AND RELOCATE AROUND POND AS REQUIRED. MATCH EXISTING SIZE AND INVERT AT POINT OF CONNECTION. LAYOUT SHOWN FOR REFERENCE ONLY	
9	CONNECT EXISTING TILE DRAIN LINE TO PROPOSED MANHOLE	
10	YARD DRAINAGE CONNECTION. SEE PLUMBING FOR CONTINUATION	
11	EXTENDED DRY BASIN	

UTILITY LABEL LEGEND

STRUCTURE LABEL

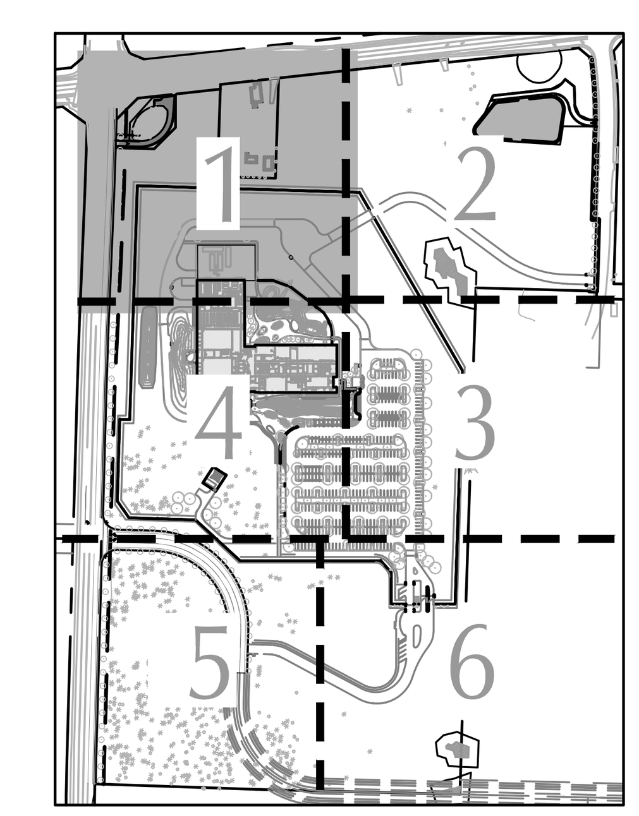
XX XX-XX — UTILITY TYPE (SD=STORM DRAINAGE); STRUCTURE TYPE CALLOUT; ID NUMBER (WHERE APPLICABLE)
X+XX.X RT X.X' — LOCATION (WHERE APPLICABLE)
RIM=
IE IN = XX.X
IE OUT = XX.X — STRUCTURE INFO (WHERE APPLICABLE)

PIPE LABEL

XXLF – XX" XX — UTILITY LENGTH; UTILITY SIZE; UTILITY TYPE
S=X.XX% — SLOPE (WHERE APPLICABLE)

STRUCTURE TYPE

CALLOUT	SYMBOL	DESCRIPTION	DETAIL REF.
CO	•	CLEANOUT	2/C802
DI	▥	DITCH INLET	390, 400/C803
AD	■	AREA DRAIN	380/C803
OV	•	OVERFLOW INLET	X/XXX
SD	▬▭▬	STORM DRAIN LINE	
MH	◉	STANDARD MANHOLE	3, 4/C802
FTMH		FLAT TOP MANHOLE	1/C802
WQMH	◉	WATER QUALITY MANHOLE	250, 260/C804
FCMH	◉	FLOW CONTROL MANHOLE	10/C802
OF	<	OUTFALL	8, 9/C802
TD		TRENCH DRAIN	7/C803
PERF	— — —	4" PERFORATED PIPE	
HB		45 DEGREE HORIZONTAL BEND	



KEY MAP

SCALE
1 INCH = 30 FEET
30 0 30 60

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EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

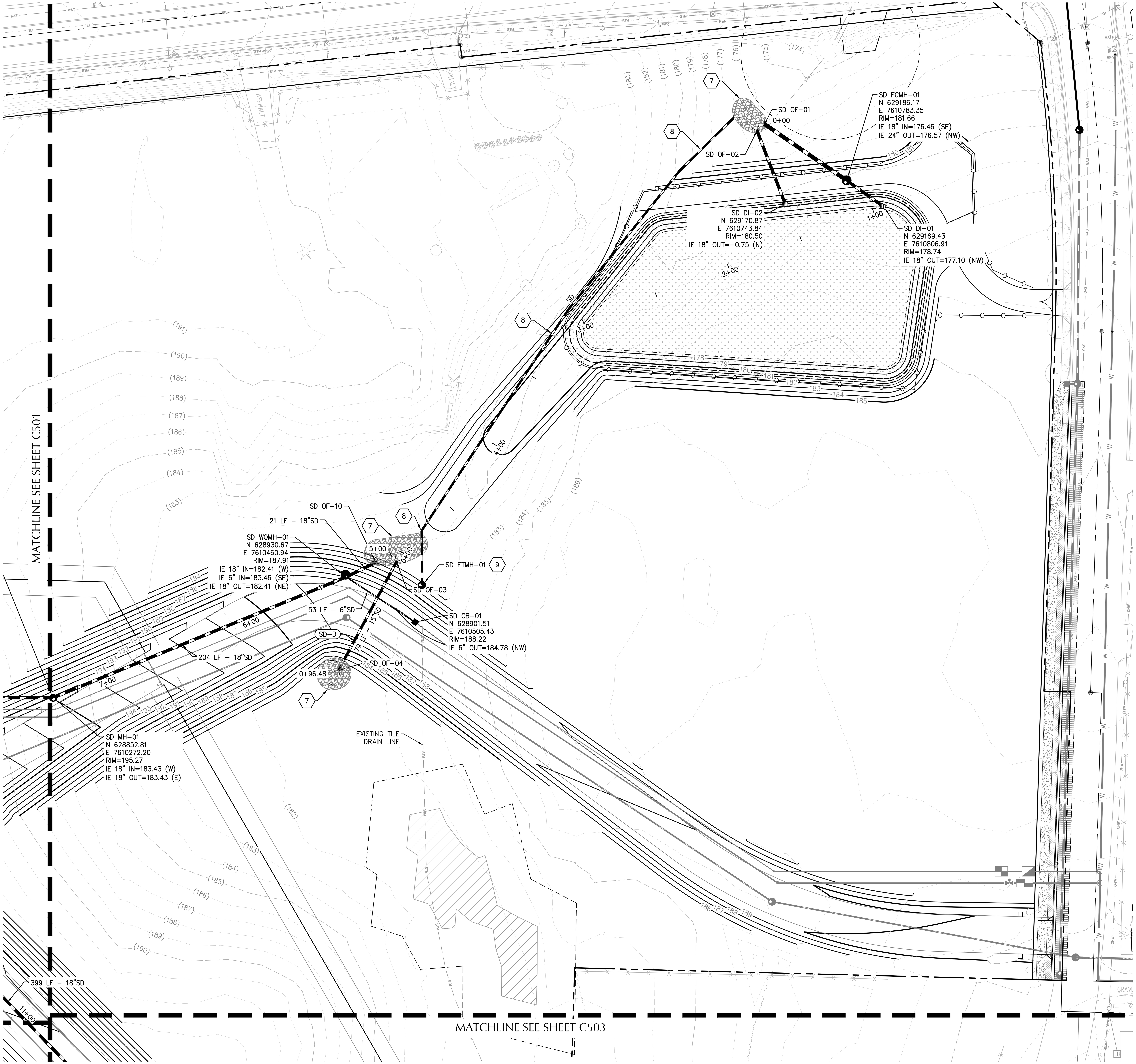
REVISIONS

CHECKED BY:	MR
ISSUE DATE:	3 JUNE 2019
PROJECT NO:	P18-003

STORM DRAINAGE PLAN

MG C501

File: N:\C\0\2018\180045-PGE-Integrated-Operations-Center\CAD\PLOT\8045-C501-STRM.dwg TAB:C501
Plotted: 5/31/19 at 1:43pm By: JSweeney
3/11/2019 9:59:29 AM



SHEET NOTES

1. WHEN PIPE COVER BECOMES LESS THAN 2-FT, PIPE MATERIAL SHALL BE DUCTILE IRON PIPE.
2. INSTALL PIPE BEDDING AND BACKFILL FOR ALL UTILITIES PER DETAIL 5/C802.
3. SEE C650 FOR FOUNDATION AND UNDERSLAB DRAINAGE.
4. INSTALL 4" PLASTIC CLEANOUTS ALONG LENGTH OF PERFORATED PIPE AT 100FT O.C. MAXIMUM AND AT ALL BENDS.

(X) KEY NOTES

#	DESCRIPTION	DETAIL REF.
1	ROOF DRAIN CONNECTION. SEE PLUMBING FOR CONTINUATION	
2	INSTALL 45 DEGREE WYE	
3	CONNECT STORM DRAINAGE TO UNDERSLAB DRAINAGE. ADD EXTENDABLE BACKWATER VALVE	5/C805
4	CONNECT UNDERSLAB DRAINAGE TO MANHOLE	
5	CONSTRUCT DRAINAGE SWALE TO STORMWATER FACILITY	
6	CONNECT ROOF DRAIN TO OUTFALL IN WATER FEATURE	
7	CONSTRUCT RIPRAP PROTECTION FOR STORMWATER INLET/OUTLET	9/C802
8	CONTRACTOR TO POTHOLE TILE DRAIN LINE AND RELOCATE AROUND POND AS REQUIRED. MATCH EXISTING SIZE AND INVERT AT POINT OF CONNECTION. LAYOUT SHOWN FOR REFERENCE ONLY	
9	CONNECT EXISTING TILE DRAIN LINE TO PROPOSED MANHOLE	
10	YARD DRAINAGE CONNECTION. SEE PLUMBING FOR CONTINUATION	
11	EXTENDED DRY BASIN	

UTILITY LABEL LEGEND

STRUCTURE LABEL

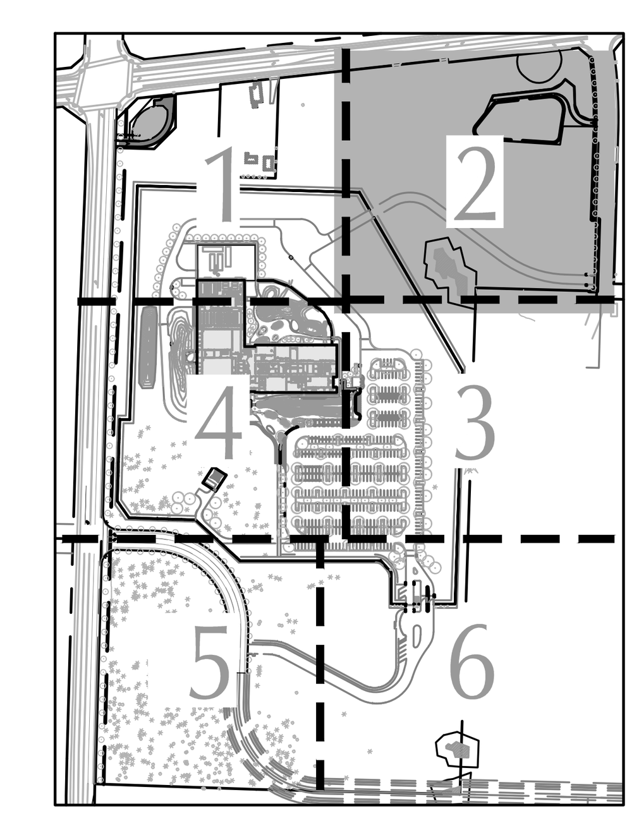
XX XX-XX — ID NUMBER (WHERE APPLICABLE); UTILITY TYPE (SD=STORM DRAINAGE); STRUCTURE TYPE CALLOUT
X+XX.X RT X.X' — LOCATION (WHERE APPLICABLE)
RIM=
IE IN = XX.X
IE OUT = XX.X — STRUCTURE INFO (WHERE APPLICABLE)

PIPE LABEL

XXLF - XX" XX — UTILITY LENGTH; UTILITY SIZE; UTILITY TYPE
S=X.XX% — SLOPE (WHERE APPLICABLE)

STRUCTURE TYPE

CALLOUT	SYMBOL	DESCRIPTION	DETAIL REF.
CO	·	CLEANOUT	2/C802
DI	▪	DITCH INLET	390, 400/C803
AD	■	AREA DRAIN	380/C803
OV	·	OVERFLOW INLET	X/XXX
SD		STORM DRAIN LINE	
MH		STANDARD MANHOLE	3, 4/C802
FTMH		FLAT TOP MANHOLE	1/C802
WQMH		WATER QUALITY MANHOLE	250, 260/C804
FCMH		FLOW CONTROL MANHOLE	10/C802
OF	<	OUTFALL	8, 9/C802
TD		TRENCH DRAIN	7/C803
PERF		4" PERFORATED PIPE	
HB		45 DEGREE HORIZONTAL BEND	



KEY MAP

SCALE 1 INCH = 30 FEET
30 0 30 60

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EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

REVISIONS

CHECKED BY: MR
ISSUE DATE: 3 JUNE 2019
PROJECT NO: P18-003

STORM DRAINAGE PLAN

MG C502

File: N:\c\2018\180045-PGE-Integrated-Operations-Center\CAD\PLOT\18045-C501-STRM.dwg TAB:C502
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3/11/2019 9:59:29 AM
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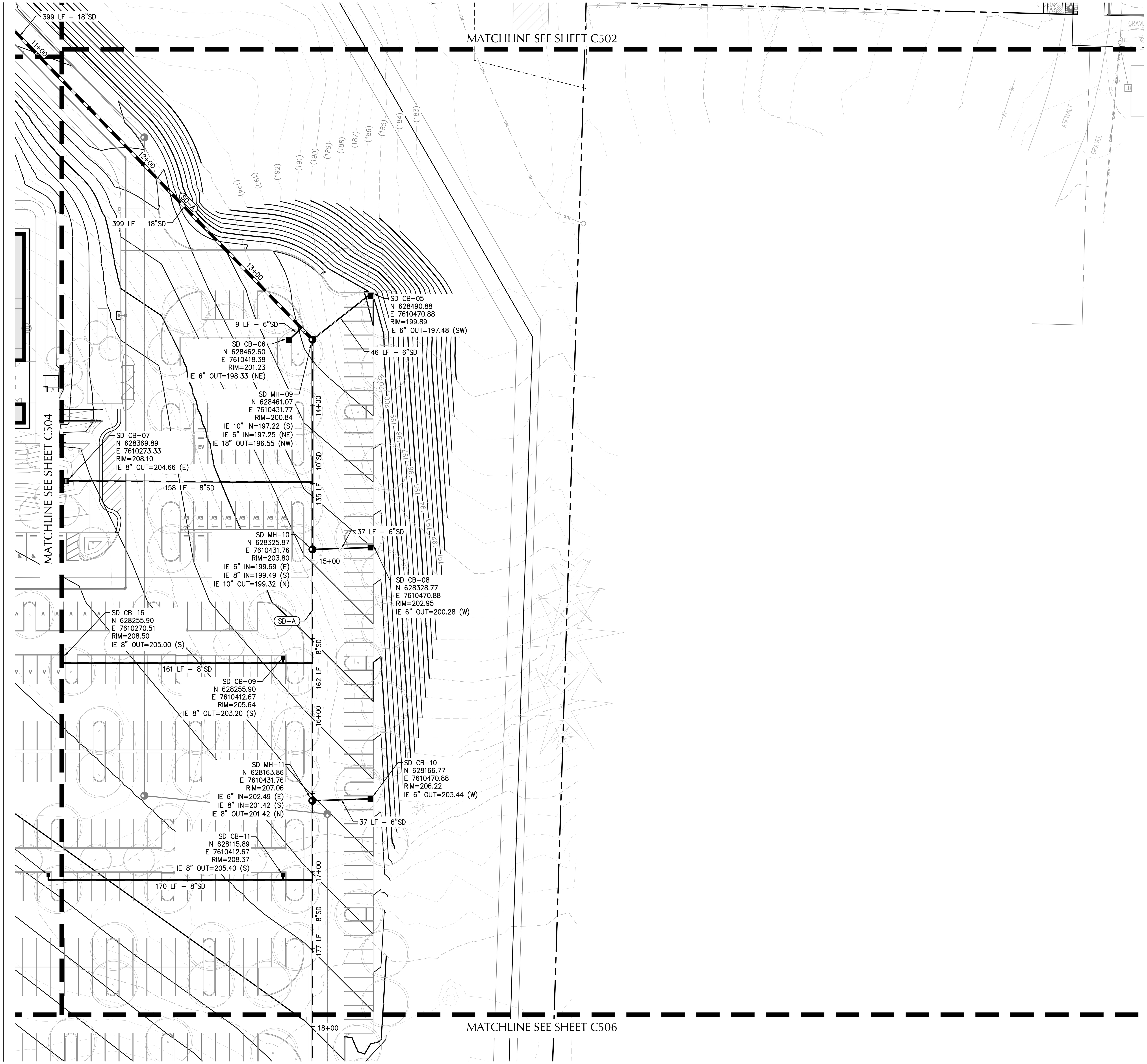

SHEET NOTES

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2. INSTALL PIPE BEDDING AND BACKFILL FOR ALL UTILITIES PER DETAIL 5/C802.
3. SEE C650 FOR FOUNDATION AND UNDERSLAB DRAINAGE.
4. INSTALL 4" PLASTIC CLEANOUTS ALONG LENGTH OF PERFORATED PIPE AT 100FT O.C. MAXIMUM AND AT ALL BENDS.

(X) KEY NOTES

#	DESCRIPTION	DETAIL REF.
1	ROOF DRAIN CONNECTION. SEE PLUMBING FOR CONTINUATION	
2	INSTALL 45 DEGREE WYE	
3	CONNECT STORM DRAINAGE TO UNDERSLAB DRAINAGE. ADD EXTENDABLE BACKWATER VALVE	5/C805
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11	EXTENDED DRY BASIN	

UTILITY LABEL LEGEND

STRUCTURE LABEL

UTILITY TYPE (SD=STORM DRAINAGE)
STRUCTURE TYPE CALLOUT
XX XX-XX — ID NUMBER (WHERE APPLICABLE)
X+XX.X RT X.X' — LOCATION (WHERE APPLICABLE)
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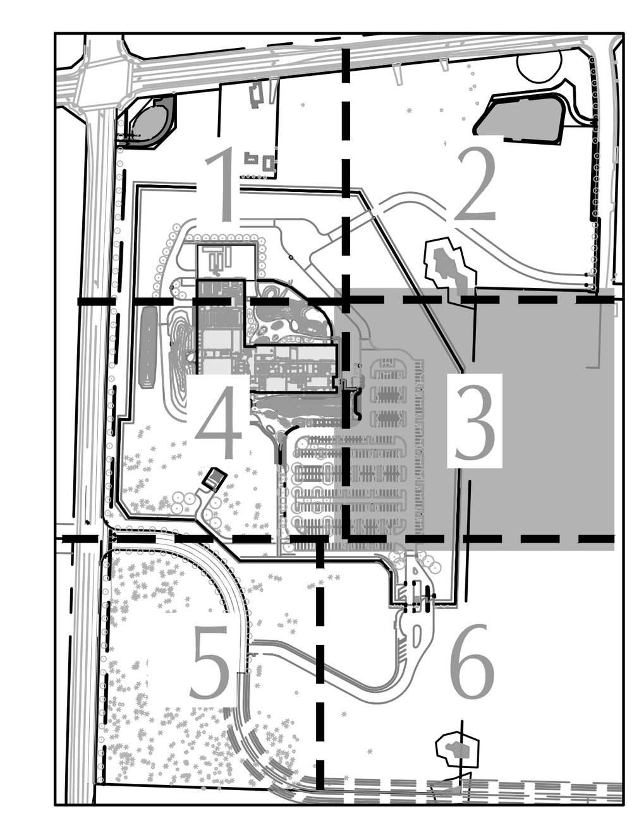
IE IN = XX.X
IE OUT = XX.X — STRUCTURE INFO (WHERE APPLICABLE)

PIPE LABEL

UTILITY LENGTH
UTILITY SIZE
XXLF – XX" XX — UTILITY TYPE
S=X.XX% — SLOPE (WHERE APPLICABLE)

STRUCTURE TYPE

CALLOUT	SYMBOL	DESCRIPTION	DETAIL REF.
CO	•	CLEANOUT	2/C802
DI	▥	DITCH INLET	390, 400/C803
AD	■	AREA DRAIN	380/C803
OV	•	OVERFLOW INLET	X/XXX
SD	▬▭▬	STORM DRAIN LINE	
MH	●	STANDARD MANHOLE	3, 4/C802
FTMH		FLAT TOP MANHOLE	1/C802
WQMH	●	WATER QUALITY MANHOLE	250, 260/C804
FCMH	●	FLOW CONTROL MANHOLE	10/C802
OF	<	OUTFALL	8, 9/C802
TD		TRENCH DRAIN	7/C803
PERF	— — —	4" PERFORATED PIPE	
HB		45 DEGREE HORIZONTAL BEND	



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CHECKED BY: MR
ISSUE DATE: 3 JUNE 2019
PROJECT NO: P18-003

STORM DRAINAGE PLAN

MG C503

File: N:\C\P\2018\1800045-PGE-Integrated-Operations-Center\CAD\PLOT\8045-C501-STRM.dwg TAB:C503
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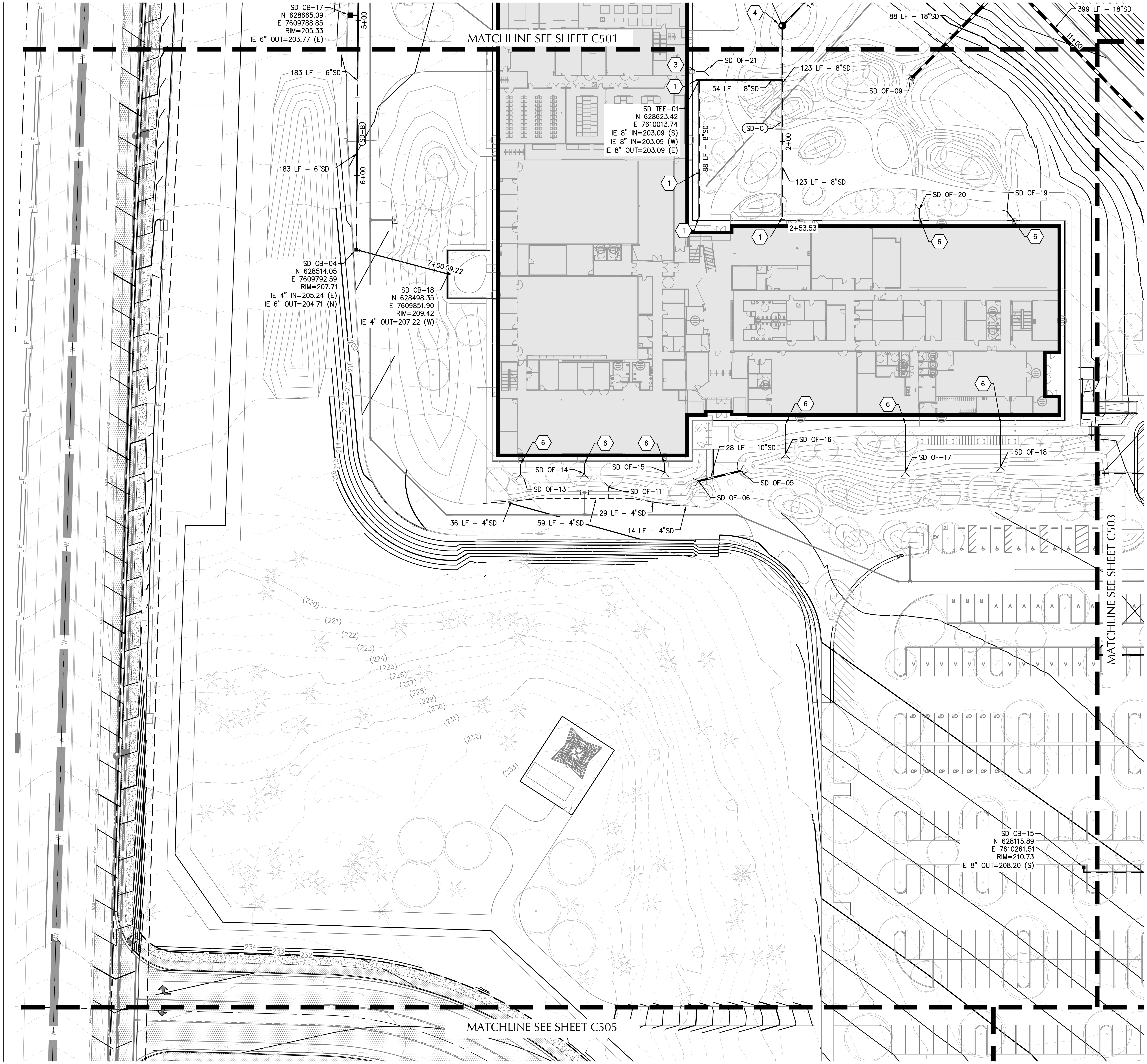
3/11/2019 9:59:29 AM



SHEET NOTES

1. WHEN PIPE COVER BECOMES LESS THAN 2-FT, PIPE MATERIAL SHALL BE DUCTILE IRON PIPE.
2. INSTALL PIPE BEDDING AND BACKFILL FOR ALL UTILITIES PER DETAIL 5/C802.
3. SEE C650 FOR FOUNDATION AND UNDERSLAB DRAINAGE.
4. INSTALL 4" PLASTIC CLEANOUTS ALONG LENGTH OF PERFORATED PIPE AT 100FT O.C. MAXIMUM AND AT ALL BENDS.

(X) KEY NOTES

#	DESCRIPTION	DETAIL REF.
1	ROOF DRAIN CONNECTION. SEE PLUMBING FOR CONTINUATION	
2	INSTALL 45 DEGREE WYE	
3	CONNECT STORM DRAINAGE TO UNDERSLAB DRAINAGE. ADD EXTENDABLE BACKWATER VALVE	5/C805
4	CONNECT UNDERSLAB DRAINAGE TO MANHOLE	
5	CONSTRUCT DRAINAGE SWALE TO STORMWATER FACILITY	
6	CONNECT ROOF DRAIN TO OUTFALL IN WATER FEATURE	
7	CONSTRUCT RIPRAP PROTECTION FOR STORMWATER INLET/OUTLET	9/C802
8	CONTRACTOR TO POTHOLE TILE DRAIN LINE AND RELOCATE AROUND POND AS REQUIRED. MATCH EXISTING SIZE AND INVERT AT POINT OF CONNECTION. LAYOUT SHOWN FOR REFERENCE ONLY	
9	CONNECT EXISTING TILE DRAIN LINE TO PROPOSED MANHOLE	
10	YARD DRAINAGE CONNECTION. SEE PLUMBING FOR CONTINUATION	
11	EXTENDED DRY BASIN	

UTILITY LABEL LEGEND

STRUCTURE LABEL

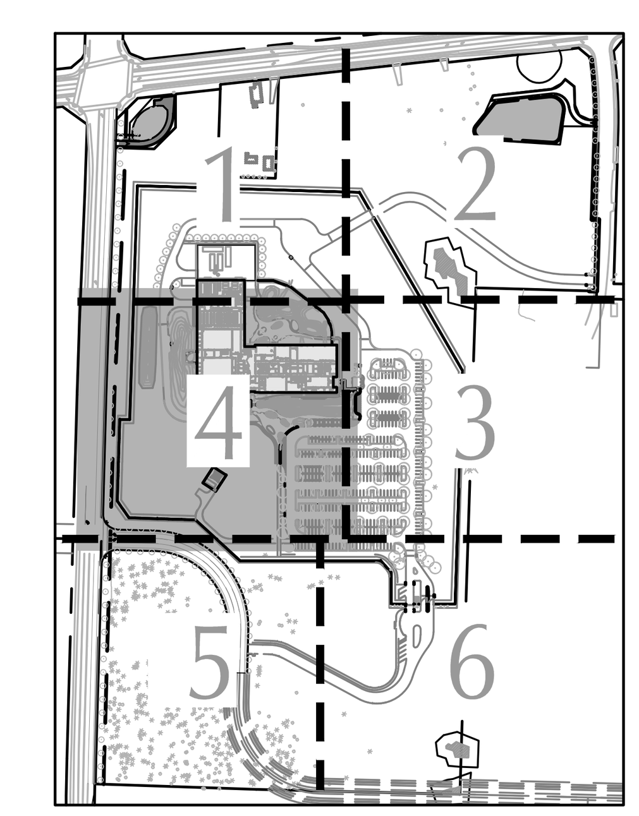
UTILITY TYPE (SD=STORM DRAINAGE)
STRUCTURE TYPE CALLOUT
XX XX-XX — ID NUMBER (WHERE APPLICABLE)
X+XX.X RT X.X' — LOCATION (WHERE APPLICABLE)
RIM=
IE IN = XX.X
IE OUT = XX.X — STRUCTURE INFO (WHERE APPLICABLE)

PIPE LABEL

UTILITY LENGTH
UTILITY SIZE
XXLF - XX" XX — UTILITY TYPE
S=X.XX% — SLOPE (WHERE APPLICABLE)

STRUCTURE TYPE

CALLOUT	SYMBOL	DESCRIPTION	DETAIL REF.
CO	·	CLEANOUT	2/C802
DI	▪	DITCH INLET	390, 400/C803
AD	■	AREA DRAIN	380/C803
OV	·	OVERFLOW INLET	X/XXX
SD		STORM DRAIN LINE	
MH		STANDARD MANHOLE	3, 4/C802
FTMH		FLAT TOP MANHOLE	1/C802
WQMH		WATER QUALITY MANHOLE	250, 260/C804
FCMH		FLOW CONTROL MANHOLE	10/C802
OF	<	OUTFALL	8, 9/C802
TD		TRENCH DRAIN	7/C803
PERF	— — —	4" PERFORATED PIPE	
HB		45 DEGREE HORIZONTAL BEND	



KEY MAP

SCALE
1 INCH = 30 FEET
30 0 30 60

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TUALATIN, OR 97062

EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

REVISIONS

CHECKED BY: MR
ISSUE DATE: 3 JUNE 2019
PROJECT NO: P18-003

STORM DRAINAGE PLAN

MG C504

File: N:\CAD\2018\180045-PGE-Integrated-Operations-Center\CAD\PLOT\8045-C501-STRM.dwg TAB:C504
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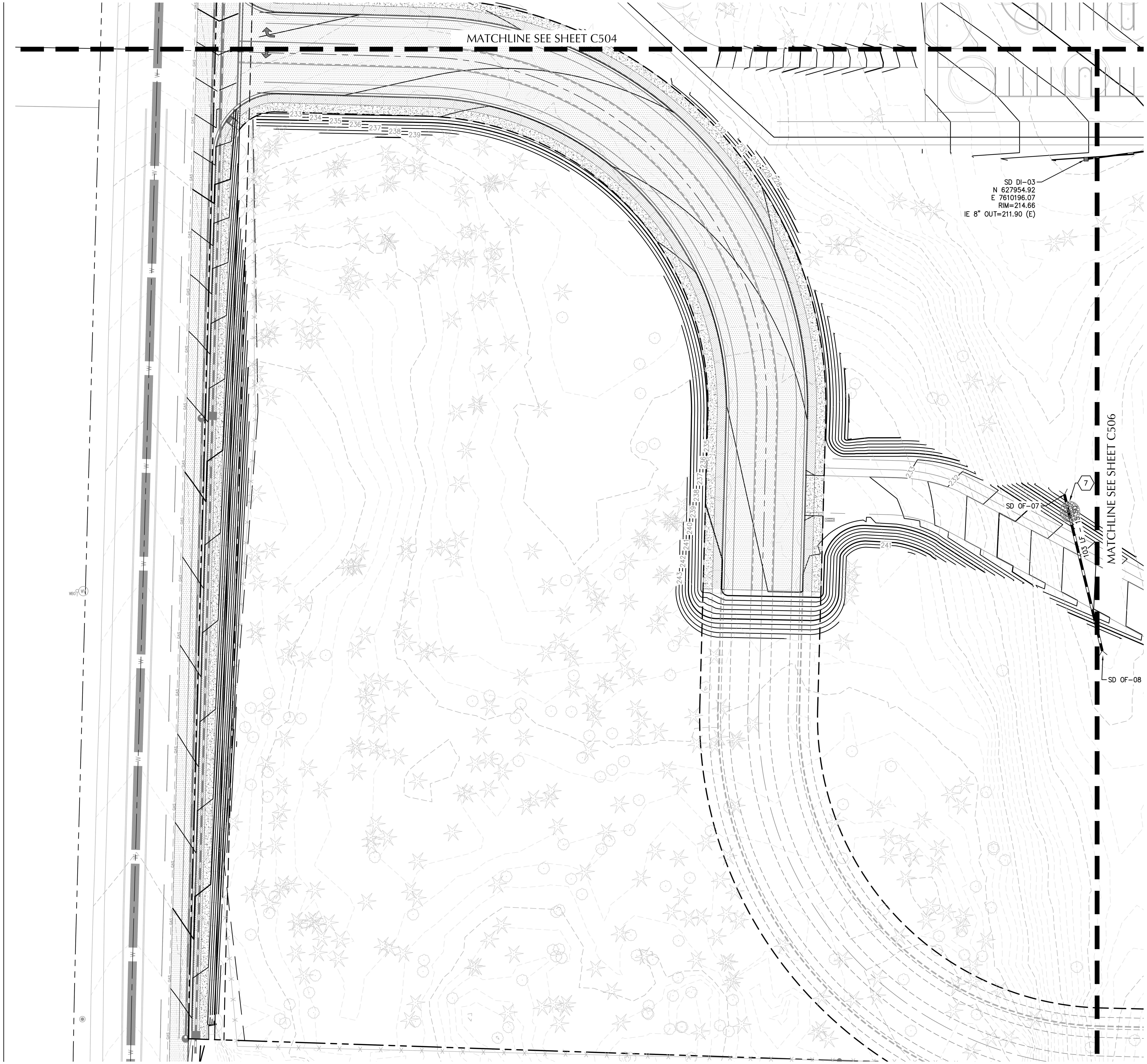


SHEET NOTES

1. WHEN PIPE COVER BECOMES LESS THAN 2-FT, PIPE MATERIAL SHALL BE DUCTILE IRON PIPE.
2. INSTALL PIPE BEDDING AND BACKFILL FOR ALL UTILITIES PER DETAIL 5/C802.
3. SEE C650 FOR FOUNDATION AND UNDERSLAB DRAINAGE.
4. INSTALL 4" PLASTIC CLEANOUTS ALONG LENGTH OF PERFORATED PIPE AT 100FT O.C. MAXIMUM AND AT ALL BENDS.

(X) KEY NOTES

#	DESCRIPTION	DETAIL REF.
1	ROOF DRAIN CONNECTION. SEE PLUMBING FOR CONTINUATION	
2	INSTALL 45 DEGREE WYE	
3	CONNECT STORM DRAINAGE TO UNDERSLAB DRAINAGE. ADD EXTENDABLE BACKWATER VALVE	5/C805
4	CONNECT UNDERSLAB DRAINAGE TO MANHOLE	
5	CONSTRUCT DRAINAGE SWALE TO STORMWATER FACILITY	
6	CONNECT ROOF DRAIN TO OUTFALL IN WATER FEATURE	
7	CONSTRUCT RIPRAP PROTECTION FOR STORMWATER INLET/OUTLET	9/C802
8	CONTRACTOR TO POTHOLE TILE DRAIN LINE AND RELOCATE AROUND POND AS REQUIRED. MATCH EXISTING SIZE AND INVERT AT POINT OF CONNECTION. LAYOUT SHOWN FOR REFERENCE ONLY	
9	CONNECT EXISTING TILE DRAIN LINE TO PROPOSED MANHOLE	
10	YARD DRAINAGE CONNECTION. SEE PLUMBING FOR CONTINUATION	
11	EXTENDED DRY BASIN	

UTILITY LABEL LEGEND

STRUCTURE LABEL

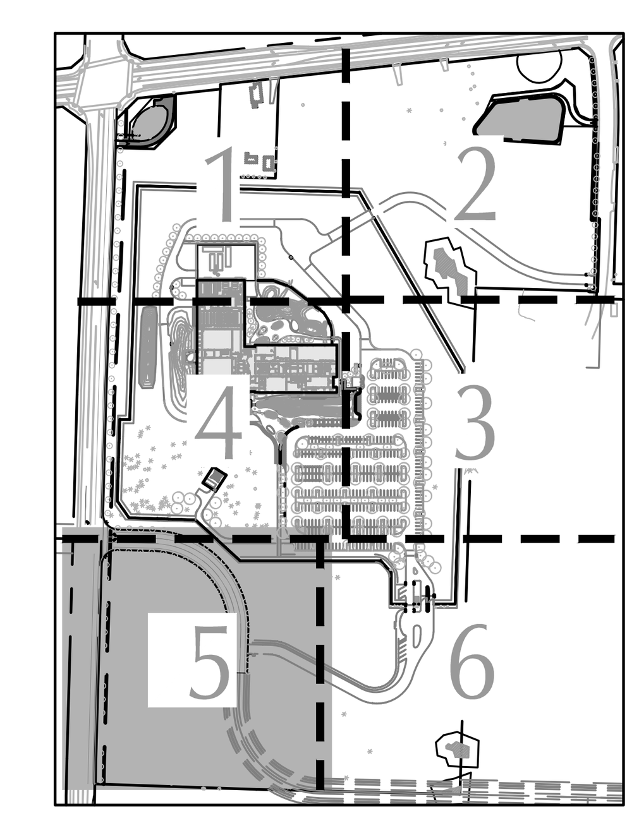
UTILITY TYPE (SD=STORM DRAINAGE)
STRUCTURE TYPE CALLOUT
XX XX-XX — ID NUMBER (WHERE APPLICABLE)
X+XX.X RT X.X' — LOCATION (WHERE APPLICABLE)
RIM=
IE IN = XX.X
IE OUT = XX.X — STRUCTURE INFO (WHERE APPLICABLE)

PIPE LABEL

UTILITY LENGTH
UTILITY SIZE
XXLF – XX" XX — UTILITY TYPE
S=X.XX% — SLOPE (WHERE APPLICABLE)

STRUCTURE TYPE

CALLOUT	SYMBOL	DESCRIPTION	DETAIL REF.
CO	·	CLEANOUT	2/C802
DI	▨	DITCH INLET	390, 400/C803
AD	■	AREA DRAIN	380/C803
OV	·	OVERFLOW INLET	X/XXX
SD	━	STORM DRAIN LINE	
MH	◕	STANDARD MANHOLE	3, 4/C802
FTMH		FLAT TOP MANHOLE	1/C802
WQMH	●	WATER QUALITY MANHOLE	250, 260/C804
FCMH	◕	FLOW CONTROL MANHOLE	10/C802
OF	<	OUTFALL	8, 9/C802
TD		TRENCH DRAIN	7/C803
PERF	– – –	4" PERFORATED PIPE	
HB		45 DEGREE HORIZONTAL BEND	



KEY MAP

SCALE 1 INCH = 30 FEET
30 0 30 60

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REVISIONS

CHECKED BY: MR
ISSUE DATE: 3 JUNE 2019
PROJECT NO: P18-003

STORM DRAINAGE PLAN

MG C505

EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

3/11/2019 9:59:29 AM
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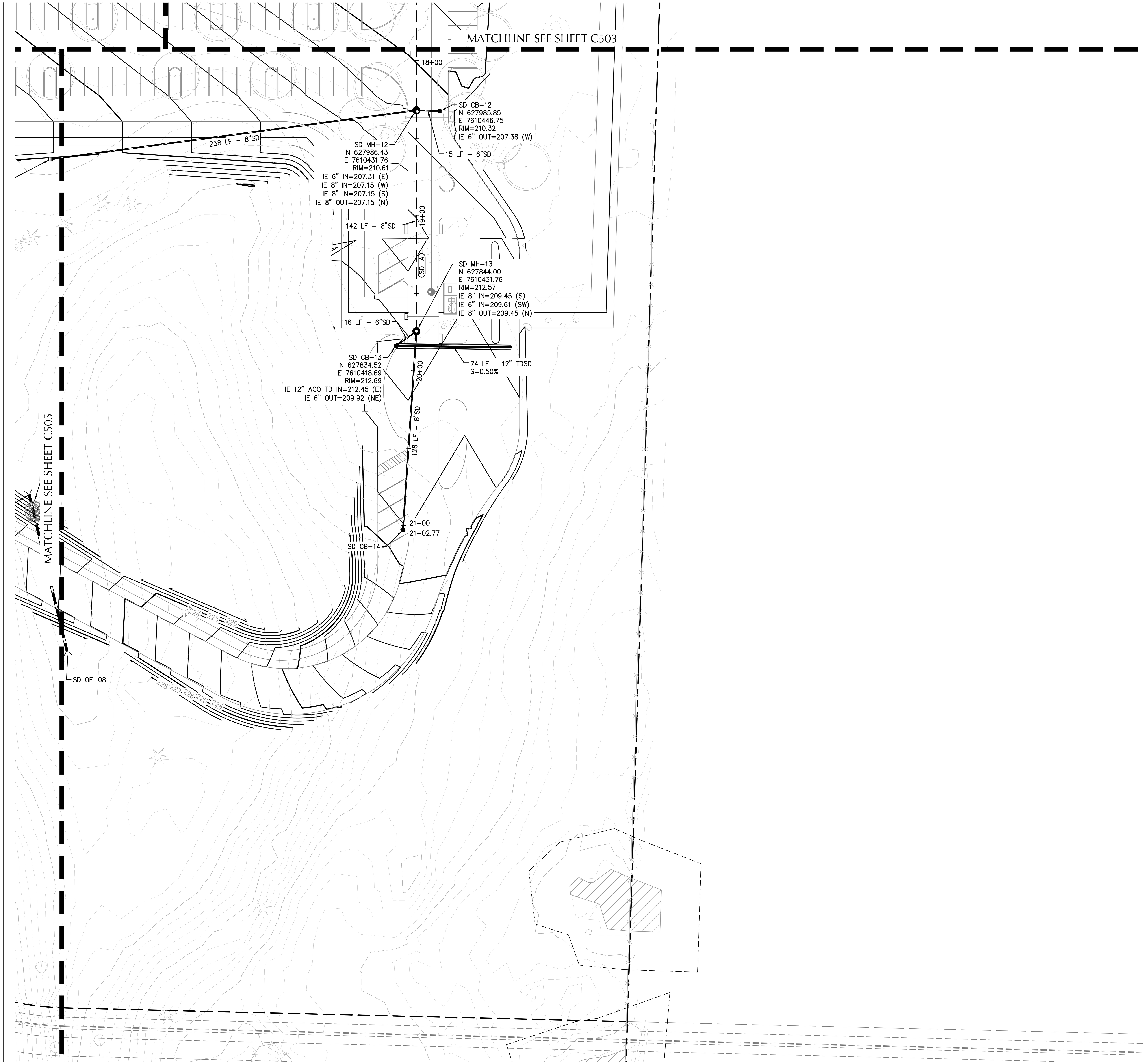

SHEET NOTES

1. WHEN PIPE COVER BECOMES LESS THAN 2-FT, PIPE MATERIAL SHALL BE DUCTILE IRON PIPE.
2. INSTALL PIPE BEDDING AND BACKFILL FOR ALL UTILITIES PER DETAIL 5/C802.
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4. INSTALL 4" PLASTIC CLEANOUTS ALONG LENGTH OF PERFORATED PIPE AT 100FT O.C. MAXIMUM AND AT ALL BENDS.

(X) KEY NOTES

#	DESCRIPTION	DETAIL REF.
1	ROOF DRAIN CONNECTION. SEE PLUMBING FOR CONTINUATION	
2	INSTALL 45 DEGREE WYE	
3	CONNECT STORM DRAINAGE TO UNDERSLAB DRAINAGE. ADD EXTENDABLE BACKWATER VALVE	5/C805
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9	CONNECT EXISTING TILE DRAIN LINE TO PROPOSED MANHOLE	
10	YARD DRAINAGE CONNECTION. SEE PLUMBING FOR CONTINUATION	
11	EXTENDED DRY BASIN	

UTILITY LABEL LEGEND

STRUCTURE LABEL

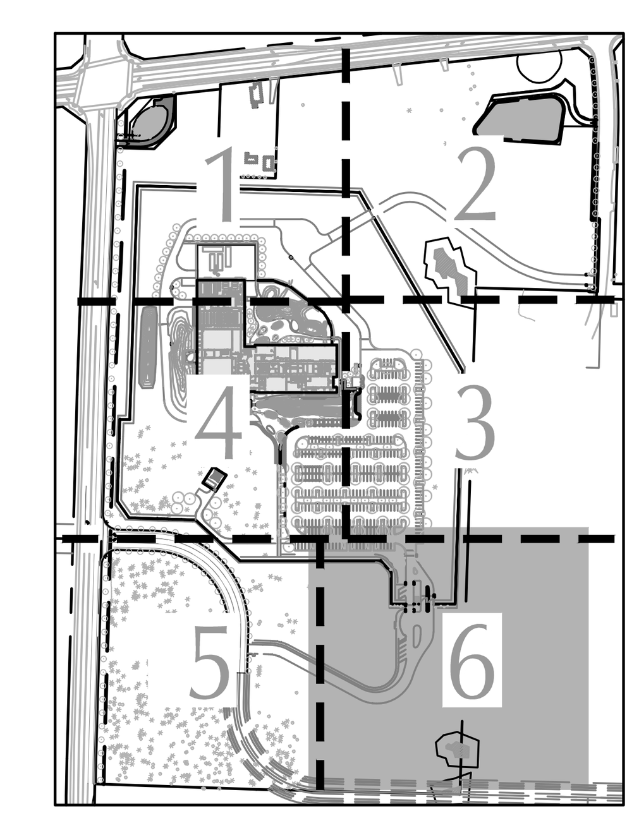
XX XX-XX — UTILITY TYPE (SD=STORM DRAINAGE); STRUCTURE TYPE CALLOUT; ID NUMBER (WHERE APPLICABLE)
X+XX.X RT X.X' — LOCATION (WHERE APPLICABLE)
RIM=
IE IN = XX.X
IE OUT = XX.X — STRUCTURE INFO (WHERE APPLICABLE)

PIPE LABEL

XXLF - XX" XX — UTILITY LENGTH; UTILITY SIZE; UTILITY TYPE
S=X.XX% — SLOPE (WHERE APPLICABLE)

STRUCTURE TYPE

CALLOUT	SYMBOL	DESCRIPTION	DETAIL REF.
CO	•	CLEANOUT	2/C802
DI	▩	DITCH INLET	390, 400/C803
AD	■	AREA DRAIN	380/C803
OV	•	OVERFLOW INLET	X/XXX
SD	━	STORM DRAIN LINE	
MH	◑	STANDARD MANHOLE	3, 4/C802
FTMH		FLAT TOP MANHOLE	1/C802
WQMH	◕	WATER QUALITY MANHOLE	250, 260/C804
FCMH	◔	FLOW CONTROL MANHOLE	10/C802
OF	<	OUTFALL	8, 9/C802
TD		TRENCH DRAIN	7/C803
PERF	— — —	4" PERFORATED PIPE	
HB		45 DEGREE HORIZONTAL BEND	



KEY MAP

SCALE 1 INCH = 30 FEET
30 0 30 60

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EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

REVISIONS

CHECKED BY: MR
ISSUE DATE: 3 JUNE 2019
PROJECT NO: P18-003

STORM DRAINAGE PLAN

MG C506

File: N:\CAD\2018\1800045-PGE-Integrated-Operations-Center\CAD\PLOT\8045-C501-STRM.dwg TAB:C506
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SERA Design and Architecture, Inc.
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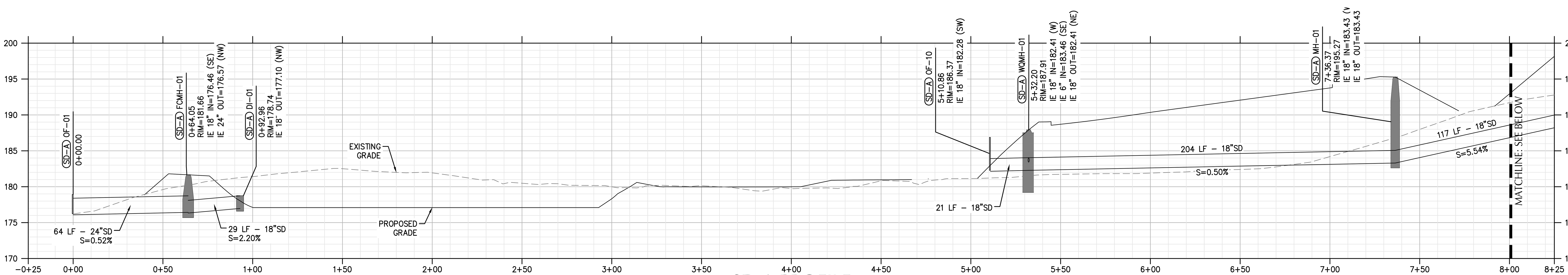
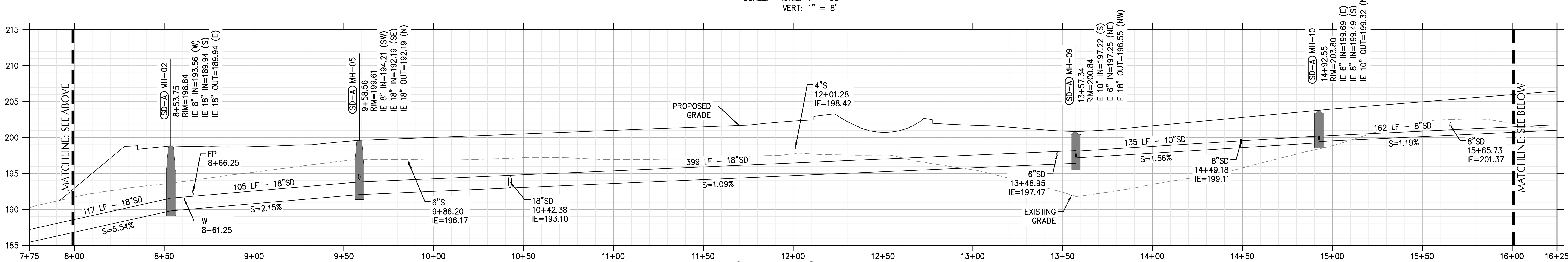


SD-A PROFILE

STA 0+00 TO STA 8+00

SCALE: HORIZ: 1" = 30'
VERT: 1" = 8'



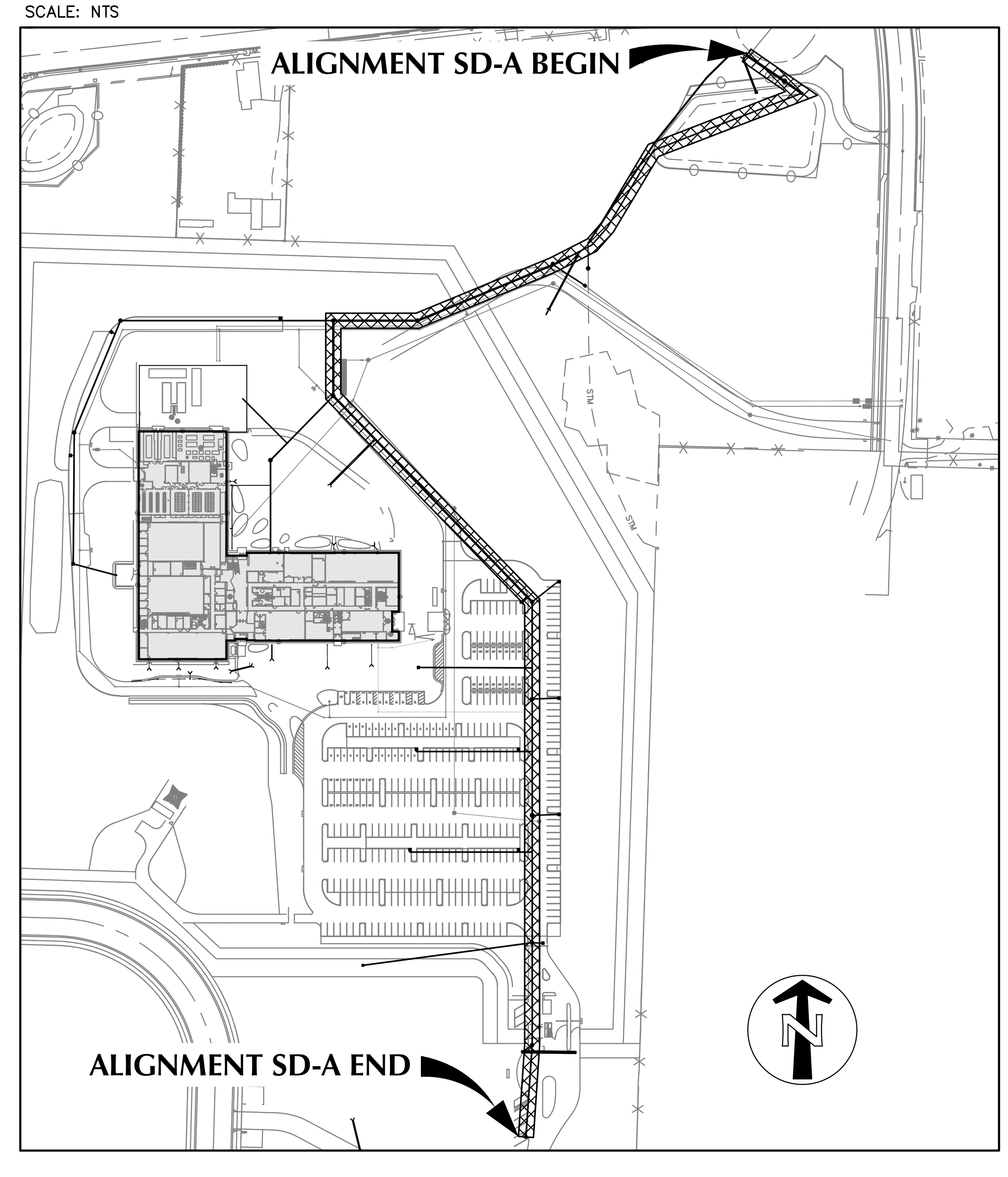
SD-A PROFILE

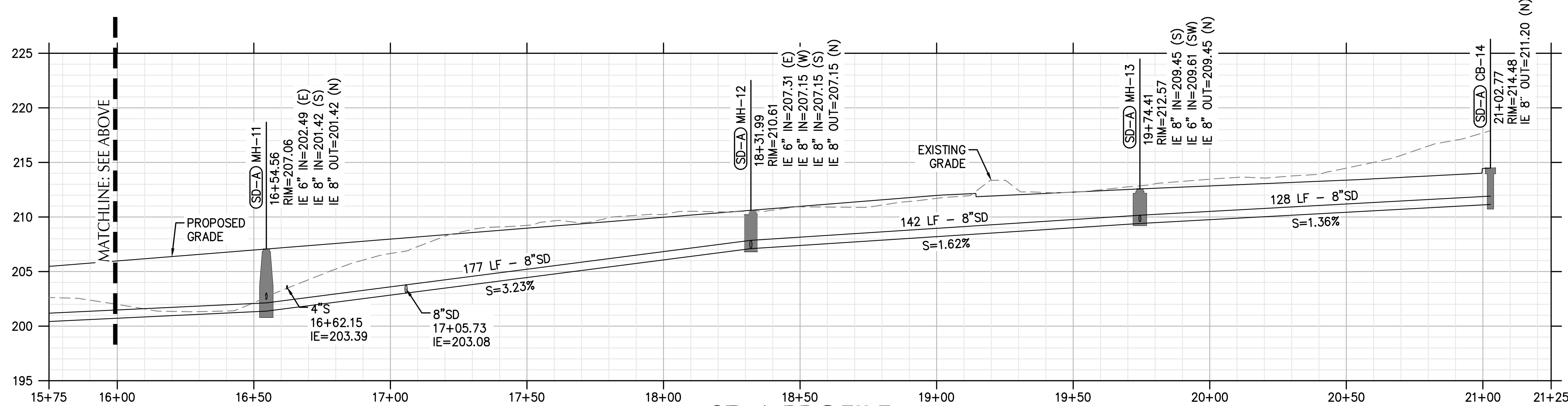
STA 8+00 TO STA 16+00

SCALE: HORIZ: 1" = 30'
VERT: 1" = 8'

STORM DRAINAGE ALIGNMENT KEY PLAN

SCALE: NTS





SD-A PROFILE

STA 16+00 TO STA 21+02

SCALE: HORIZ: 1" = 30'
VERT: 1" = 8'

SCALE
1 INCH = 100 FEET
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3/11/2019 9:59:29 AM
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EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

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CHECKED BY:	MR
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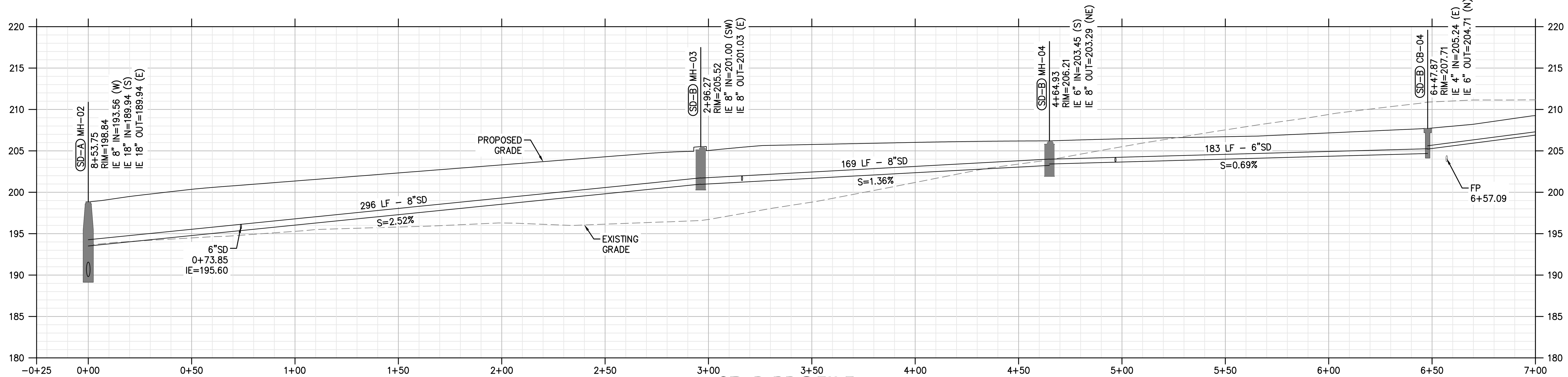
PROJECT NO:	P18-003

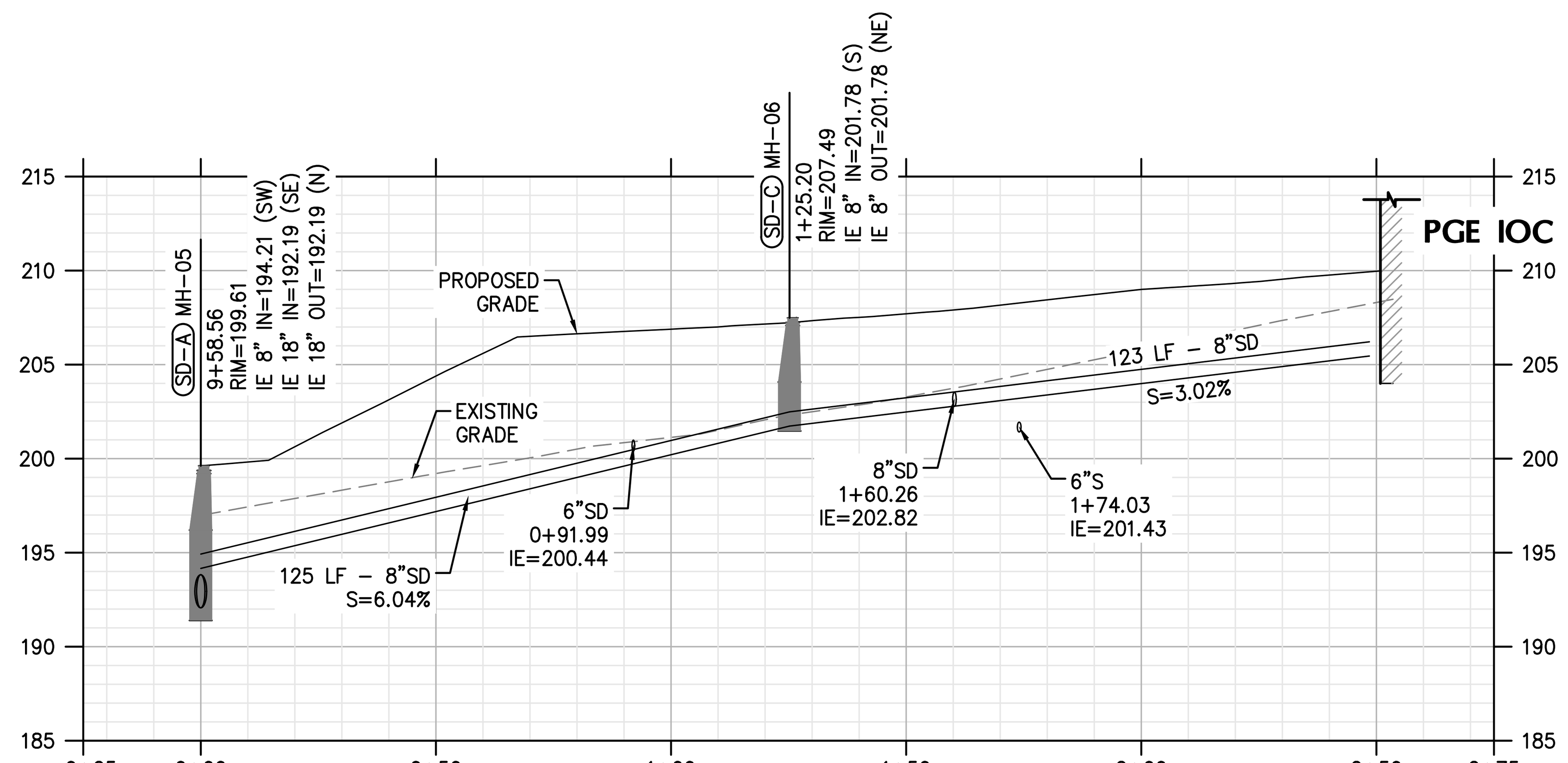
OVERALL STORM DRAINAGE PLAN

MG C510



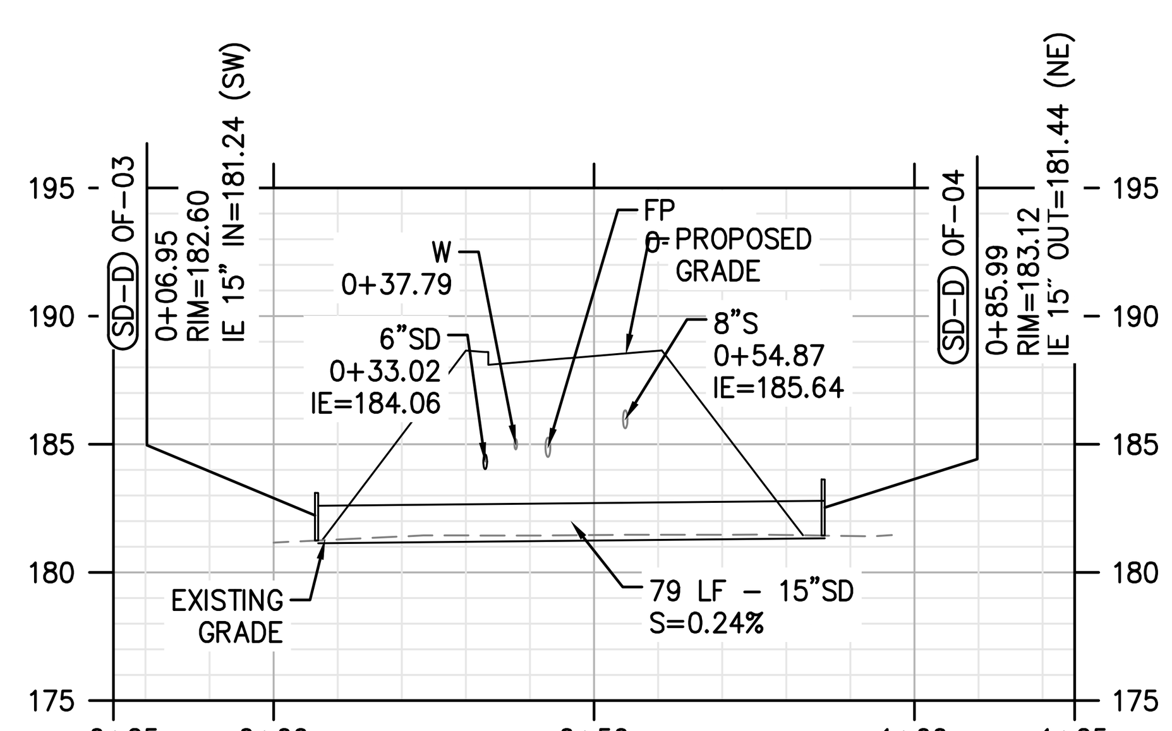
SD-B PROFILE

SCALE: HORIZ: 1" = 30'
VERT: 1" = 8'



SD-C PROFILE

SCALE: HORIZ: 1" = 30'
VERT: 1" = 8'

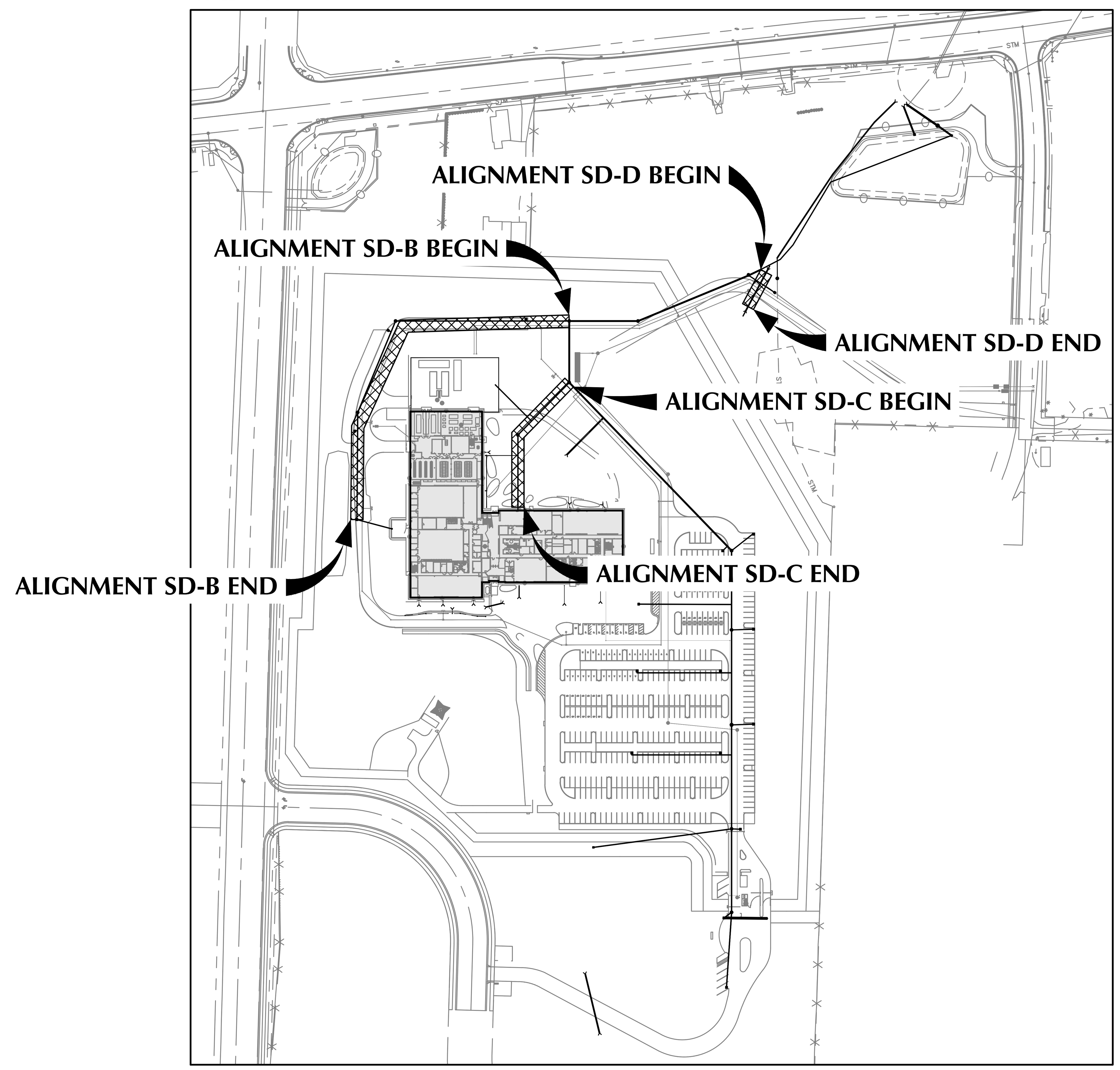


SD-D PROFILE

SCALE: HORIZ: 1" = 30'
VERT: 1" = 8'

STORM DRAINAGE ALIGNMENT KEY PLAN

SCALE: NTS



SCALE 1 INCH = 30 FEET
30 0 30 60

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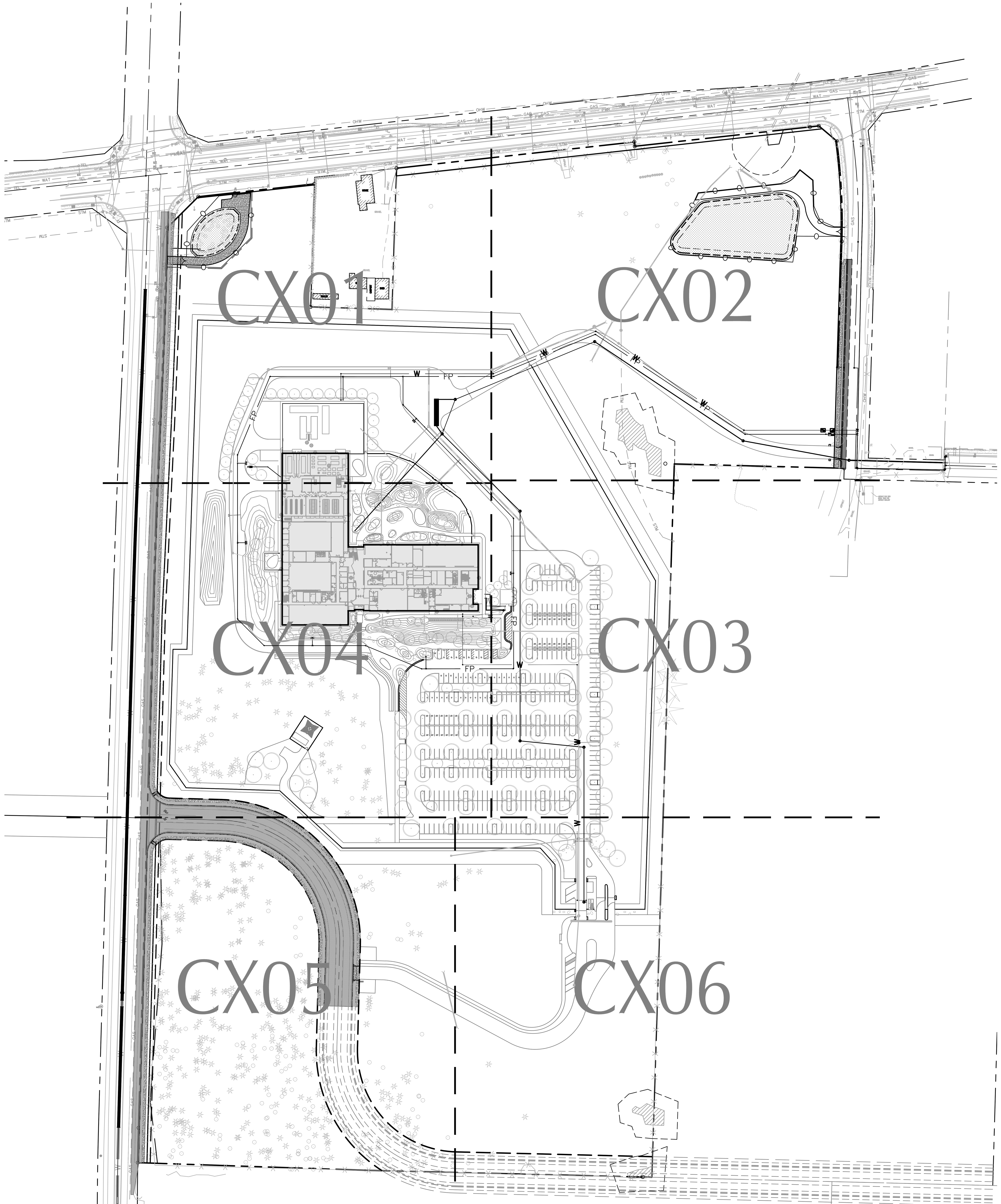
OVERALL STORM DRAINAGE PLAN

MG C511



SCALE
1 INCH = 100 FEET
100 0 100 200

UTILITY LABEL LEGEND

STRUCTURE LABEL

XX XX–XX
- UTILITY TYPE
- STRUCTURE TYPE CALLOUT
- ID NUMBER (WHERE APPLICABLE)

PIPE LABEL

XXLF – XX" XX
S=X.XX%
- UTILITY LENGTH
- UTILITY SIZE
- UTILITY TYPE
- SLOPE (WHERE APPLICABLE)

STRUCTURE TYPE

CALLOUT	SYMBOL	DESCRIPTION	DETAIL REF.
CO	·	CLEANOUT	2/C802
BDV	▯	BALL DRIP VALVE	5/C804
BFP		BACKFLOW PREVENTER	1/C805
BWF		EXTENDABLE BACKWATER VALVE	5/C805
DCDV		DOUBLE CHECK DETECTOR VALVE	1/C804
FDC		FIRE DEPARTMENT CONNECTION	2/C804
FH		FIRE HYDRANT	4/C804
GV		GATE VALVE	6/C804
HB		HORIZONTAL BEND	
MH		MANHOLE	4/C805
PIV		POST INDICATOR VALVE	3/C804
VB		VERTICAL BEND	
WM		WATER METER	3/C805
YH	○	YARD HYDRANT	2/C805

LEGEND

PROPOSED	DESCRIPTION
	STORM DRAIN
	GRAVITY SANITARY SEWER LINE
W	WATER LINE
FP	FIRE PROTECTION LINE

UTILITY NOTES

1. STRUCTURE LOCATIONS ARE BASED ON CENTER OF STRUCTURE.
2. ALL UTILITY SERVICE PIPING WITHIN 5' OF ANY BUILDING SHALL BE AN APPROVED MATERIAL ACCORDING TO THE UNIFORM BUILDING CODE.
3. REFERENCE ELECTRICAL SITE PLAN FOR ROUTING OF ELECTRICAL UTILITIES AND DETAILS.
4. INSTALL THRUST BLOCK ON FIRE AND WATER LINES PER CITY OF TUALATIN STANDARD DWG NO 620. 1/C806
5. PIPE BEDDING AND BACKFILL FOR ALL ONSITE UTILITIES SHALL BE DONE PER DETAIL 5/C802.

KEY NOTES

1. SEE PLUMBING PLANS FOR BUILDING CONNECTION. VERIFY IE AT POINT OF CONNECTION PRIOR TO CONSTRUCTION.
2. CONNECT PRIVATE SEWER LINE TO PUBLIC SEWER MANHOLE – REFERENCE PUBLIC IMPROVEMENT PLANS FOR OFFSITE SEWER CONSTRUCTION.
3. CONNECT PRIVATE WATER LINE TO PUBLIC WATER LINE.
4. SEWAGE HOLDING TANK SHALL BE BURIED 15,000 GALLON, 8-FT DIAMETER FIBERGLASS TANK AND SHALL INCLUDE THE FOLLOWING:
   - –DEADMAN AND TIEDOWNS
   - –(5) ACCESS RISERS WITH MANHOLE COVERS
   - –(2) MECHANICAL FLOATS
   - –LIQUID LEVEL ALARM PANEL WITH AUDIBLE AND VISIBLE ALARM
   - –TIEBACK TO BUILDING DAS SYSTEM

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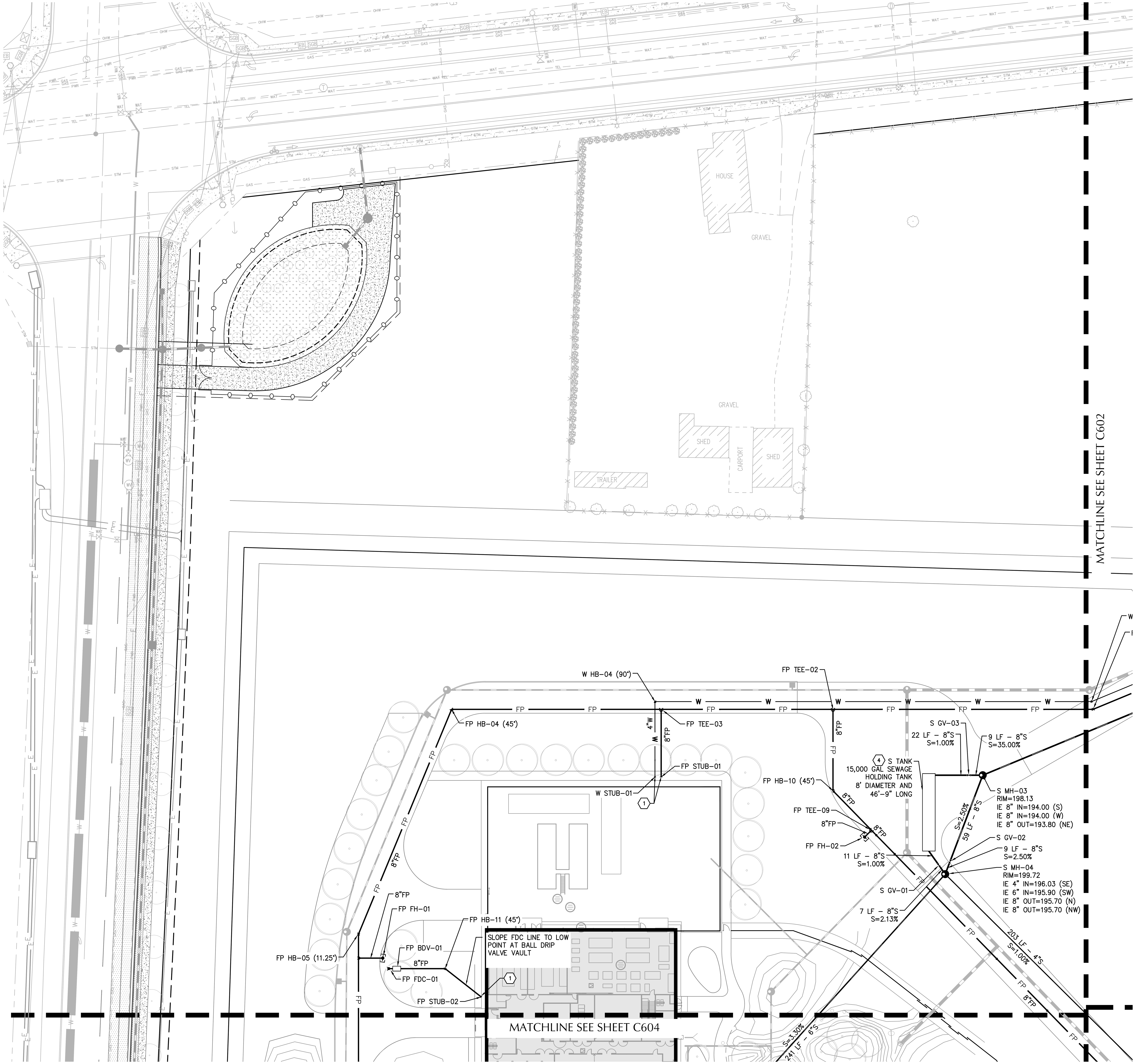
PROJECT NO: P18-003

OVERALL STORM DRAINAGE PLAN

MG C600

EXCAVATION, GRADING, AND EROSION CONTROL PERMITS



UTILITY LABEL LEGEND

STRUCTURE LABEL

XX XX–XX
- UTILITY TYPE
- STRUCTURE TYPE CALLOUT
- ID NUMBER (WHERE APPLICABLE)

PIPE LABEL

XXLF – XX" XX
S=X.XX%
- UTILITY LENGTH
- UTILITY SIZE
- UTILITY TYPE
- SLOPE (WHERE APPLICABLE)

STRUCTURE TYPE

CALLOUT	SYMBOL	DESCRIPTION	DETAIL REF.
CO		CLEANOUT	2/C802
BDV	▯	BALL DRIP VALVE	5/C804
BFP	▪	BACKFLOW PREVENTER	1/C805
BWF		EXTENDABLE BACKWATER VALVE	5/C803
DCDV	▪	DOUBLE CHECK DETECTOR VALVE	1/C804
FDC		FIRE DEPARTMENT CONNECTION	2/C804
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HB		HORIZONTAL BEND	
MH		MANHOLE	4/C803
PIV		POST INDICATOR VALVE	3/C804
VB		VERTICAL BEND	
WM	◩	WATER METER	3/C805
YH	○	YARD HYDRANT	2/C805

LEGEND

PROPOSED	DESCRIPTION
	STORM DRAIN
	GRAVITY SANITARY SEWER LINE
—— W ——	WATER LINE
—— FP ——	FIRE PROTECTION LINE

UTILITY NOTES

1. STRUCTURE LOCATIONS ARE BASED ON CENTER OF STRUCTURE.
2. ALL UTILITY SERVICE PIPING WITHIN 5' OF ANY BUILDING SHALL BE AN APPROVED MATERIAL ACCORDING TO THE UNIFORM BUILDING CODE.
3. REFERENCE ELECTRICAL SITE PLAN FOR ROUTING OF ELECTRICAL UTILITIES AND DETAILS.
4. INSTALL THRUST BLOCK ON FIRE AND WATER LINES PER CITY OF TUALATIN STANDARD DWG NO 620. 1/C806
5. PIPE BEDDING AND BACKFILL FOR ALL ONSITE UTILITIES SHALL BE DONE PER DETAIL 5/C802.

KEY NOTES (X)

1. SEE PLUMBING PLANS FOR BUILDING CONNECTION. VERIFY IE AT POINT OF CONNECTION PRIOR TO CONSTRUCTION.
2. CONNECT PRIVATE SEWER LINE TO PUBLIC SEWER MANHOLE – REFERENCE PUBLIC IMPROVEMENT PLANS FOR OFFSITE SEWER CONSTRUCTION.
3. CONNECT PRIVATE WATER LINE TO NEW PUBLIC WATER MAIN.
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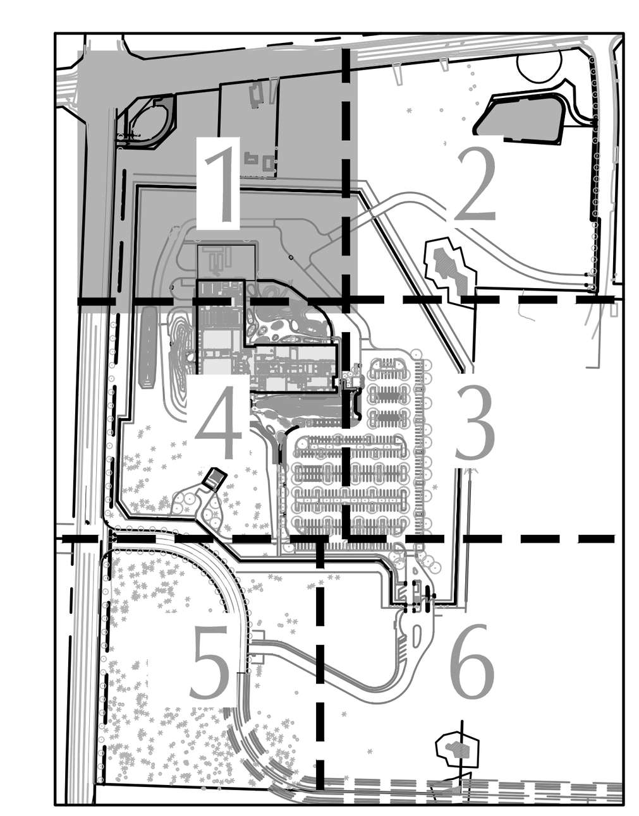
5. CITY OF TUALATIN WATER MAIN EXTENSION TO BE CONSTRUCTED UNDER SEPARATE PERMIT.
6. CITY OF TUALATIN SANITARY SEWER MAIN EXTENSION TO BE CONSTRUCTED UNDER SEPARATE PERMIT.



KEY MAP

SCALE 1 INCH = 30 FEET
30 0 30 60

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PORTLAND GENERAL ELECTRIC INTEGRATED OPERATIONS CENTER

PORTLAND GENERAL ELECTRIC
12150 SW TUALATIN-SHERWOOD ROAD
TUALATIN, OR 97062

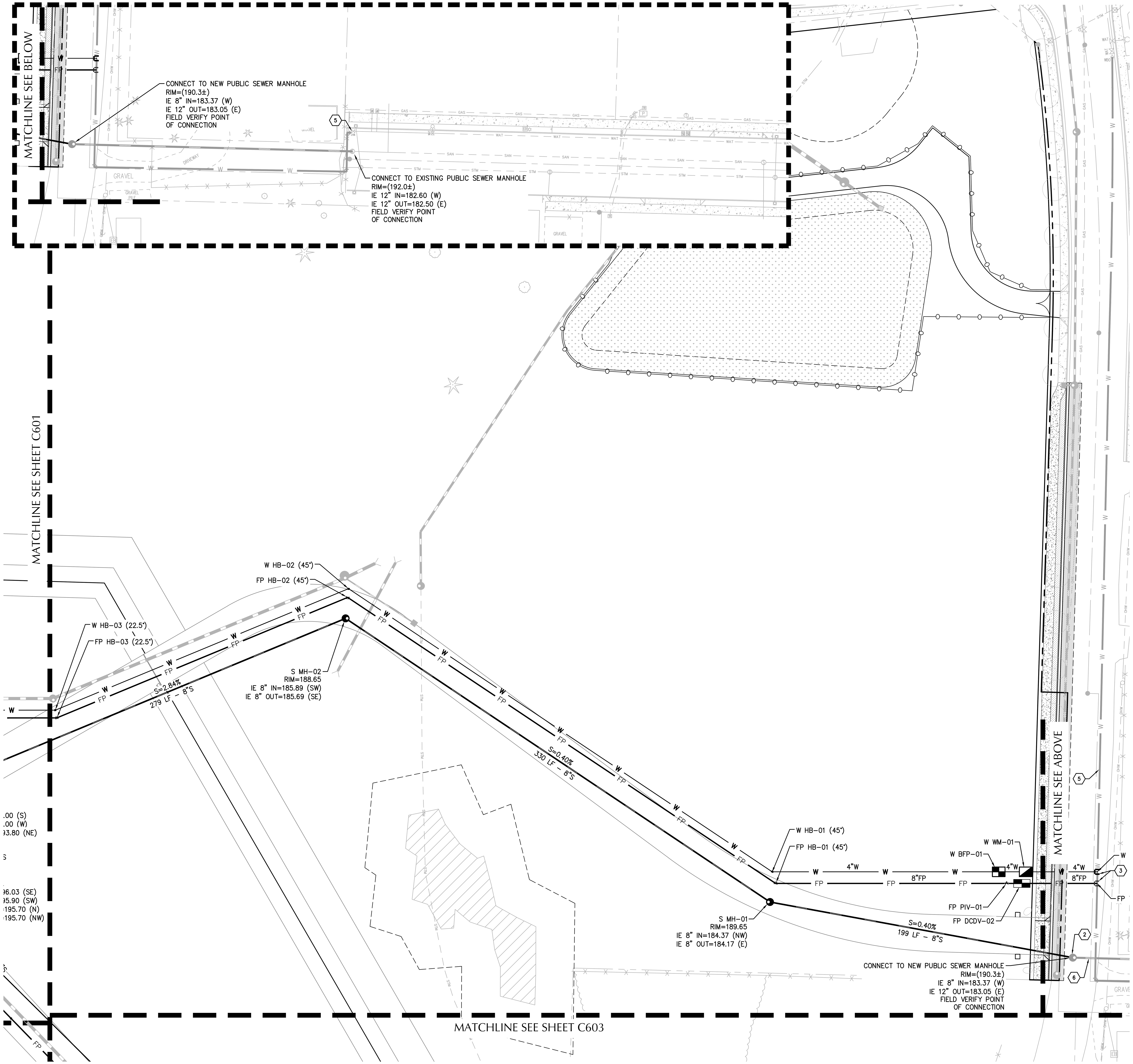
EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

REVISIONS

CHECKED BY:	MR
ISSUE DATE:	3 JUNE 2019
PROJECT NO:	P18-003

UTILITY PLAN

MG C601



UTILITY LABEL LEGEND

STRUCTURE LABEL

XX XX-XX
- UTILITY TYPE
- STRUCTURE TYPE CALLOUT
- ID NUMBER (WHERE APPLICABLE)

PIPE LABEL

XXLF - XX" XX S=X.XX%
- UTILITY LENGTH
- UTILITY SIZE
- UTILITY TYPE
- SLOPE (WHERE APPLICABLE)

STRUCTURE TYPE

CALLOUT	SYMBOL	DESCRIPTION	DETAIL REF.
CO		CLEANOUT	2/C802
BDV		BALL DRIP VALVE	5/C804
BFP		BACKFLOW PREVENTER	1/C805
BWF		EXTENDABLE BACKWATER VALVE	5/C803
DCDV		DOUBLE CHECK DETECTOR VALVE	1/C804
FDC		FIRE DEPARTMENT CONNECTION	2/C804
FH		FIRE HYDRANT	4/C804
GV		GATE VALVE	6/C804
HB		HORIZONTAL BEND	
MH		MANHOLE	4/C803
PIV		POST INDICATOR VALVE	3/C804
VB		VERTICAL BEND	
WM		WATER METER	3/C805
YH		YARD HYDRANT	2/C805

LEGEND

PROPOSED	DESCRIPTION
	STORM DRAIN
	GRAVITY SANITARY SEWER LINE
W	WATER LINE
FP	FIRE PROTECTION LINE

UTILITY NOTES

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KEY NOTES (X)

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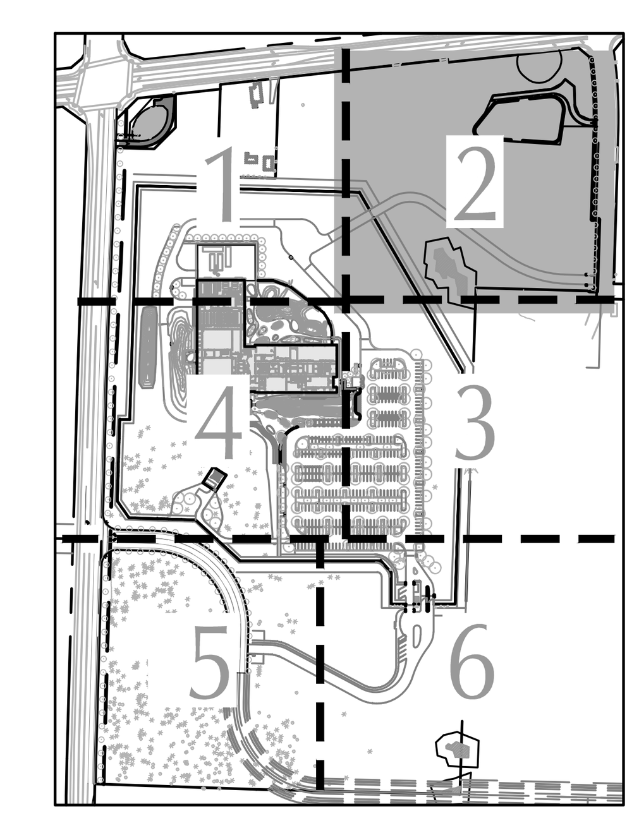

KEY MAP

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EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

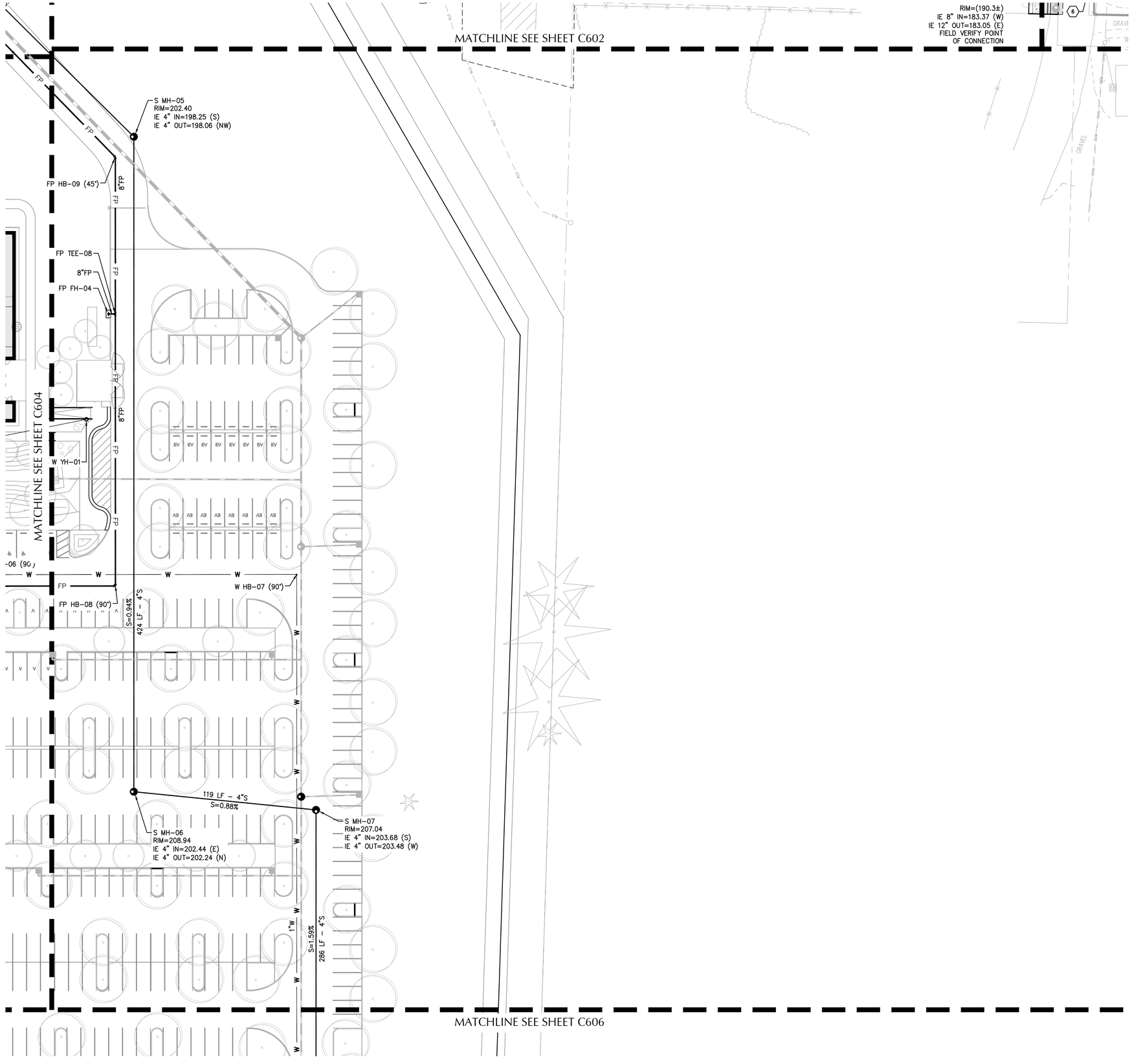
REVISIONS

CHECKED BY:	MR
ISSUE DATE:	3 JUNE 2019
PROJECT NO:	P18-003

UTILITY PLAN

MG C602

File: N:\C\1\2018\1800045-PGE-Integrated-Operations-Center\CAD\PLOT\8045-C601-UTIL.dwg TAB:C602
Plotted: 5/31/19 at 1:44pm By: jSweeney
SERA Design and Architecture, Inc.
3/11/2019 9:59:29 AM



UTILITY LABEL LEGEND

STRUCTURE LABEL

XX XX–XX
- XX: UTILITY TYPE
- XX: STRUCTURE TYPE CALLOUT
- XX: ID NUMBER (WHERE APPLICABLE)

PIPE LABEL

XXLF – XX" XX
S=X.XX%
- XXLF: UTILITY LENGTH
- XX": UTILITY SIZE
- XX: UTILITY TYPE
- S=X.XX%: SLOPE (WHERE APPLICABLE)

STRUCTURE TYPE

CALLOUT	SYMBOL	DESCRIPTION	DETAIL REF.
CO		CLEANOUT	2/C805
BDV		BALL DRIP VALVE	5/C804
BFP		BACKFLOW PREVENTER	1/C805
BWF		EXTENDABLE BACKWATER VALVE	5/C805
DCDV		DOUBLE CHECK DETECTOR VALVE	1/C804
FDC		FIRE DEPARTMENT CONNECTION	2/C804
FH		FIRE HYDRANT	4/C804
GV		GATE VALVE	6/C804
HB		HORIZONTAL BEND	
MH		MANHOLE	4/C805
PIV		POST INDICATOR VALVE	3/C804
VB		VERTICAL BEND	
WM		WATER METER	3/C805
YH		YARD HYDRANT	2/C805

LEGEND

PROPOSED	DESCRIPTION
	STORM DRAIN
	GRAVITY SANITARY SEWER LINE
W	WATER LINE
FP	FIRE PROTECTION LINE

UTILITY NOTES

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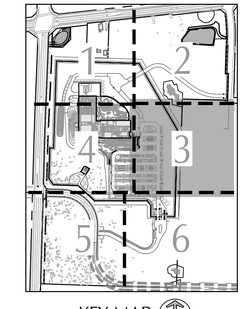

KEY MAP

SCALE 1 INCH = 30 FEET
30 0 30 60

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REVISIONS

CHECKED BY: MR
ISSUE DATE: 3 JUNE 2019
PROJECT NO: P18-003

UTILITY PLAN

MG C603

EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

File: N:\c_yr\2018\1800045-PGE-Integrated-Operations-Center\CAD\PLOT\8045-C601-UTIL.dwg TAB:C603
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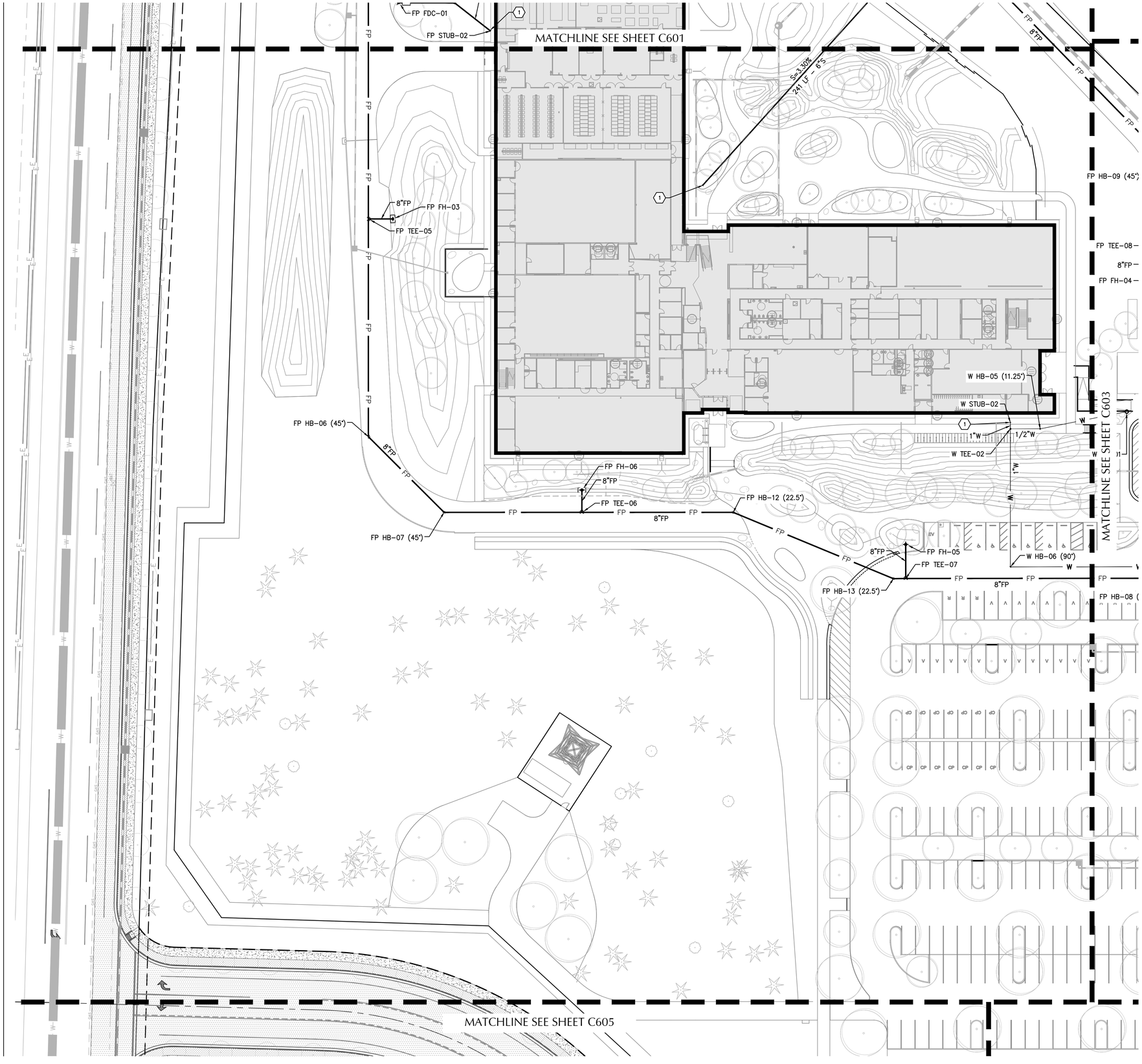
SERA Design and Architecture, Inc.



UTILITY LABEL LEGEND

STRUCTURE LABEL

XX XX–XX
- XX: UTILITY TYPE
- XX: STRUCTURE TYPE CALLOUT
- XX: ID NUMBER (WHERE APPLICABLE)

PIPE LABEL

XXLF – XX" XX
S=X.XX%
- XXLF: UTILITY LENGTH
- XX": UTILITY SIZE
- XX: UTILITY TYPE
- S=X.XX%: SLOPE (WHERE APPLICABLE)

STRUCTURE TYPE

CALLOUT	SYMBOL	DESCRIPTION	DETAIL REF.
CO		CLEANOUT	2 C805
BDV		BALL DRIP VALVE	5 C804
BFP		BACKFLOW PREVENTER	1 C805
BWF		EXTENDABLE BACKWATER VALVE	5 C805
DCDV		DOUBLE CHECK DETECTOR VALVE	1 C804
FDC		FIRE DEPARTMENT CONNECTION	2 C804
FH		FIRE HYDRANT	4 C804
GV		GATE VALVE	6 C804
HB		HORIZONTAL BEND	
MH		MANHOLE	4 C805
PIV		POST INDICATOR VALVE	3 C804
VB		VERTICAL BEND	
WM		WATER METER	3 C805
YH		YARD HYDRANT	2 C805

LEGEND

PROPOSED	DESCRIPTION
	STORM DRAIN
	GRAVITY SANITARY SEWER LINE
W	WATER LINE
FP	FIRE PROTECTION LINE

UTILITY NOTES

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KEY NOTES (X)

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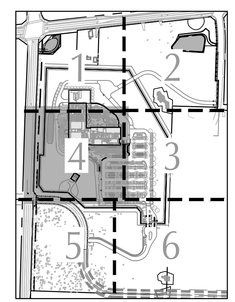

KEY MAP

SCALE 1 INCH = 30 FEET
30 0 30 60

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REVISIONS

CHECKED BY: MR
ISSUE DATE: 3 JUNE 2019
PROJECT NO: P18-003

UTILITY PLAN

EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

MG C604

File: N:\v-p\2018\180045-PGE_Integrated-Operations-Center\CAD\PLOT\8045-C601-UTIL.dwg TAB:C604
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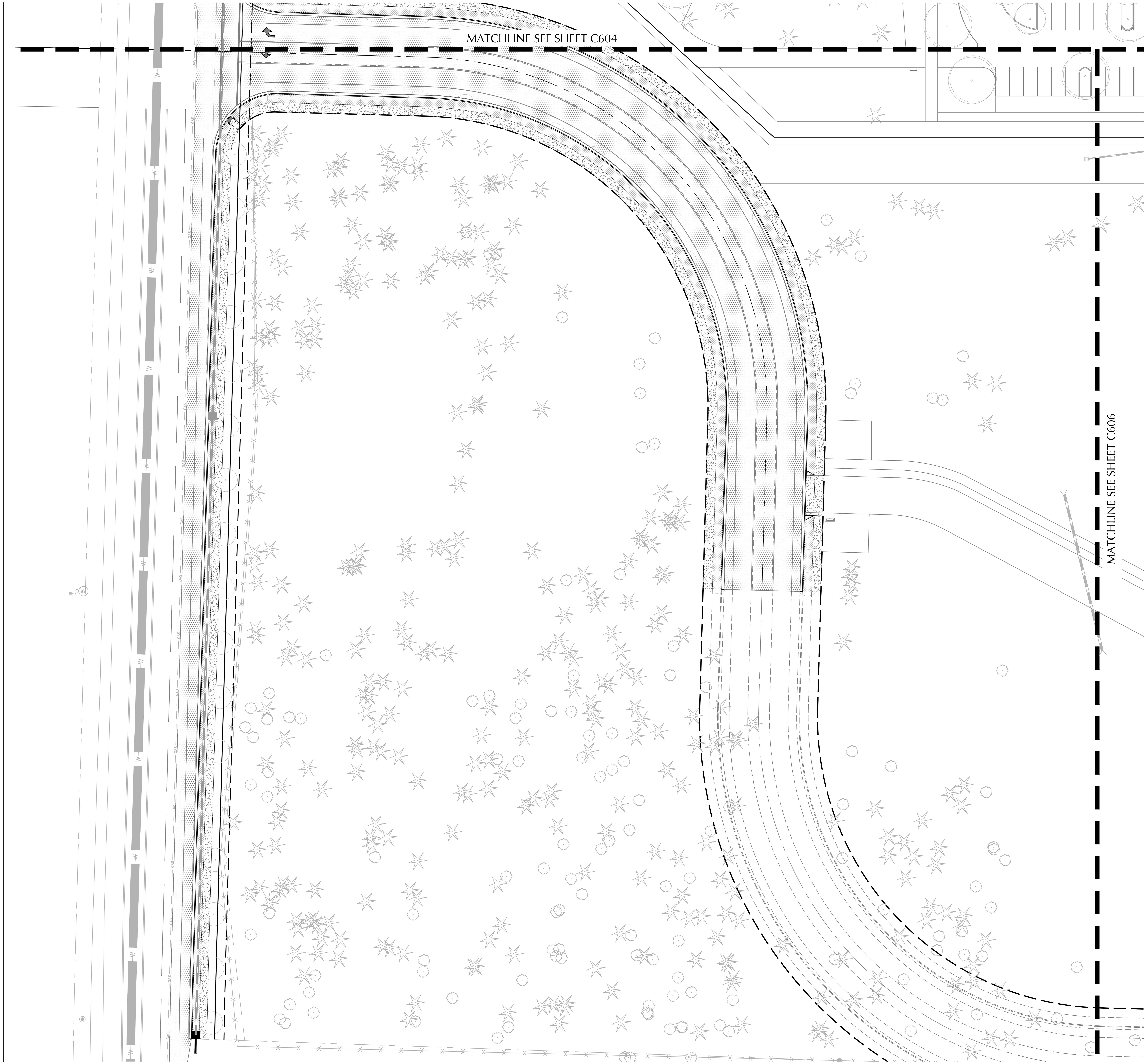

UTILITY LABEL LEGEND

STRUCTURE LABEL

- UTILITY TYPE
- STRUCTURE TYPE CALLOUT
- XX XX–XX
- ID NUMBER (WHERE APPLICABLE)

PIPE LABEL

- UTILITY LENGTH
- UTILITY SIZE
- UTILITY TYPE
- XXLF – XX" XX
- S=X.XX%
- SLOPE (WHERE APPLICABLE)

STRUCTURE TYPE

CALLOUT	SYMBOL	DESCRIPTION	DETAIL REF.
CO		CLEANOUT	2/C802
BDV		BALL DRIP VALVE	5/C804
BFP		BACKFLOW PREVENTER	1/C805
BWF		EXTENDABLE BACKWATER VALVE	5/C803
DCDV		DOUBLE CHECK DETECTOR VALVE	1/C804
FDC		FIRE DEPARTMENT CONNECTION	2/C804
FH		FIRE HYDRANT	4/C804
GV		GATE VALVE	6/C804
HB		HORIZONTAL BEND	
MH		MANHOLE	4/C803
PIV		POST INDICATOR VALVE	3/C804
VB		VERTICAL BEND	
WM		WATER METER	3/C805
YH		YARD HYDRANT	2/C805

LEGEND

PROPOSED	DESCRIPTION
	STORM DRAIN
	GRAVITY SANITARY SEWER LINE
W	WATER LINE
FP	FIRE PROTECTION LINE

UTILITY NOTES

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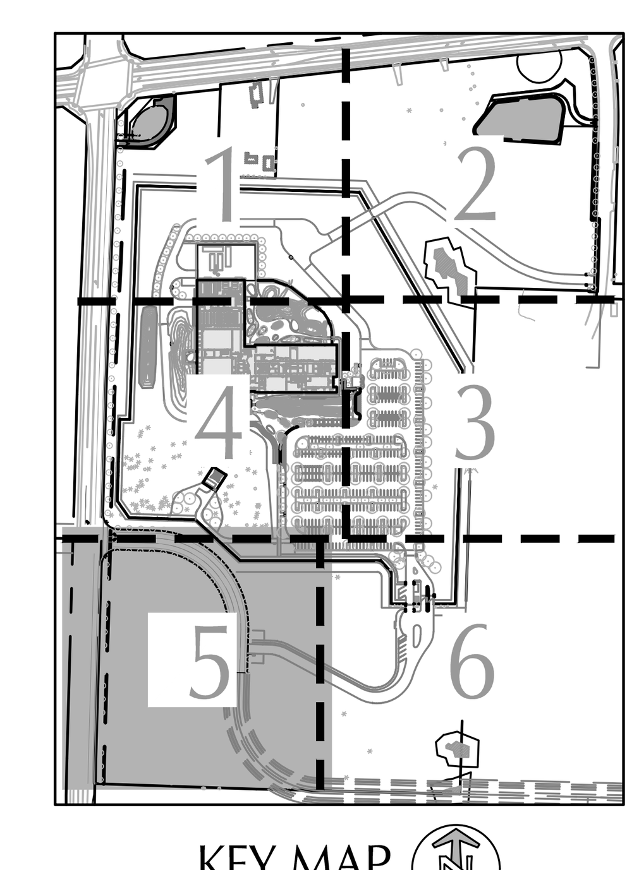

KEY MAP

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EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

REVISIONS

CHECKED BY: MR
ISSUE DATE: 3 JUNE 2019
PROJECT NO: P18-003

UTILITY PLAN

MG C605

File: N:\c\p\2018\1800045-PGE-Integrated-Operations-Center\CAD\PLOT\8045-C601-UTIL.dwg TAB:C605
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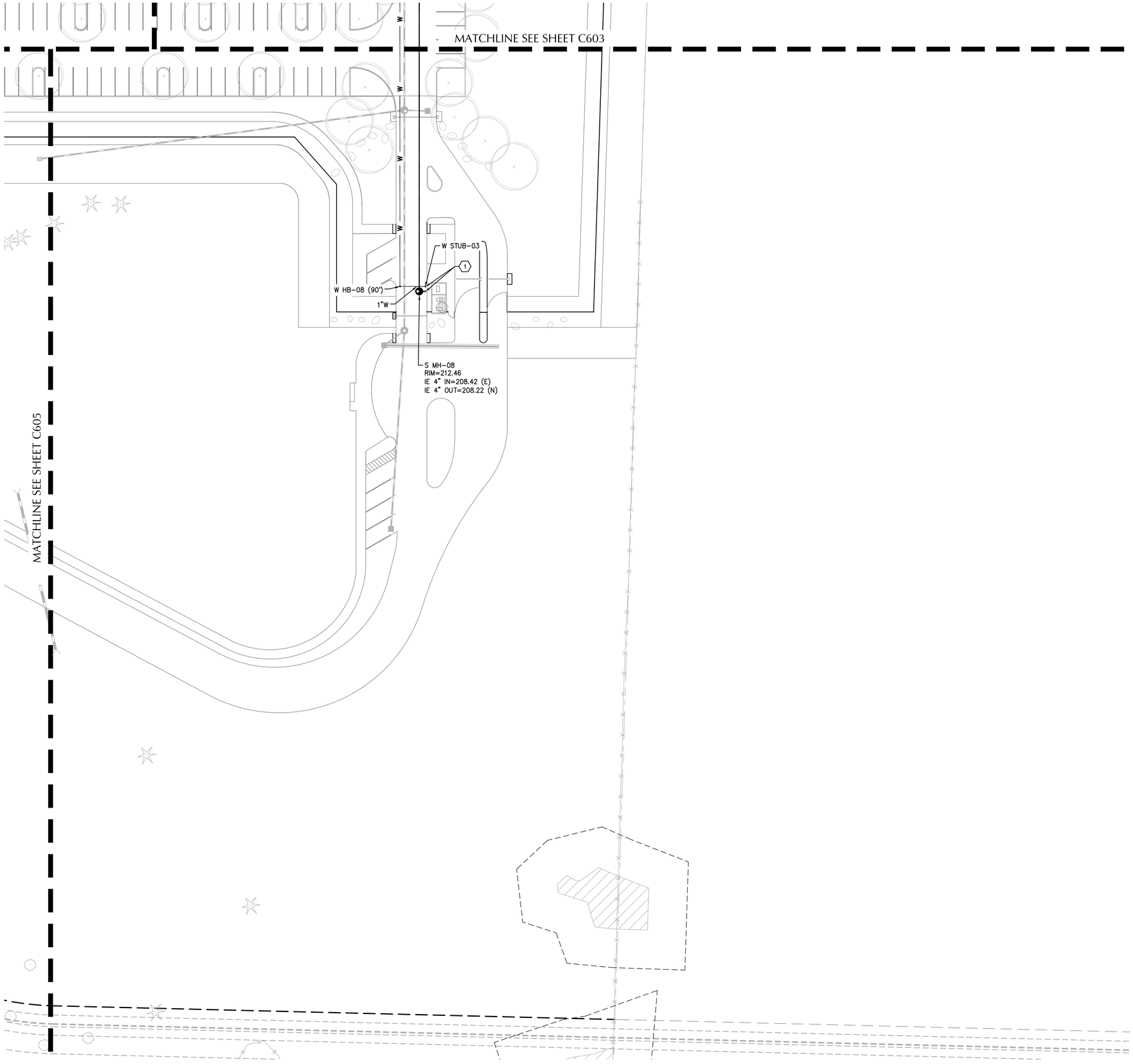
3/11/2019 9:59:29 AM SERA Design and Architecture, Inc.



UTILITY LABEL LEGEND

STRUCTURE LABEL: XX XX–XX — XX = UTILITY TYPE; XX = STRUCTURE TYPE CALLOUT; XX = ID NUMBER (WHERE APPLICABLE)

PIPE LABEL: XXLF – XX" XX — XXLF = UTILITY LENGTH; XX" = UTILITY SIZE; XX = UTILITY TYPE; S=X.XX% = SLOPE (WHERE APPLICABLE)

STRUCTURE TYPE

CALLOUT	SYMBOL	DESCRIPTION	DETAIL REF.
CO		CLEANOUT	2/C805
BDV		BALL DRIP VALVE	5/C804
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VB		VERTICAL BEND	
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LEGEND

PROPOSED	DESCRIPTION
	STORM DRAIN
	GRAVITY SANITARY SEWER LINE
W	WATER LINE
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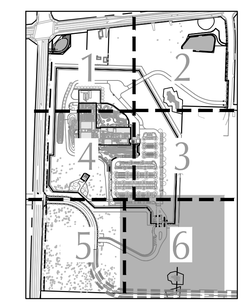

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REVISIONS

CHECKED BY: MR
ISSUE DATE: 3 JUNE 2019
PROJECT NO: P18-003

UTILITY PLAN

MG C606

EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

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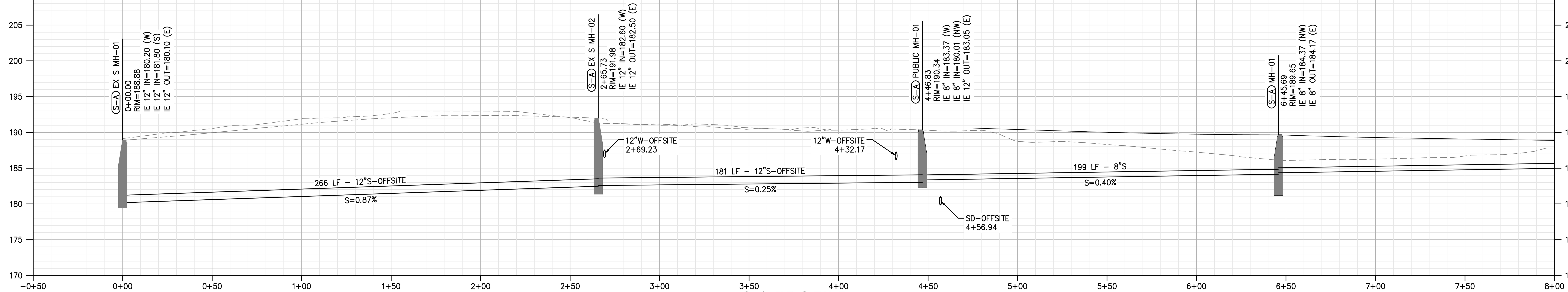
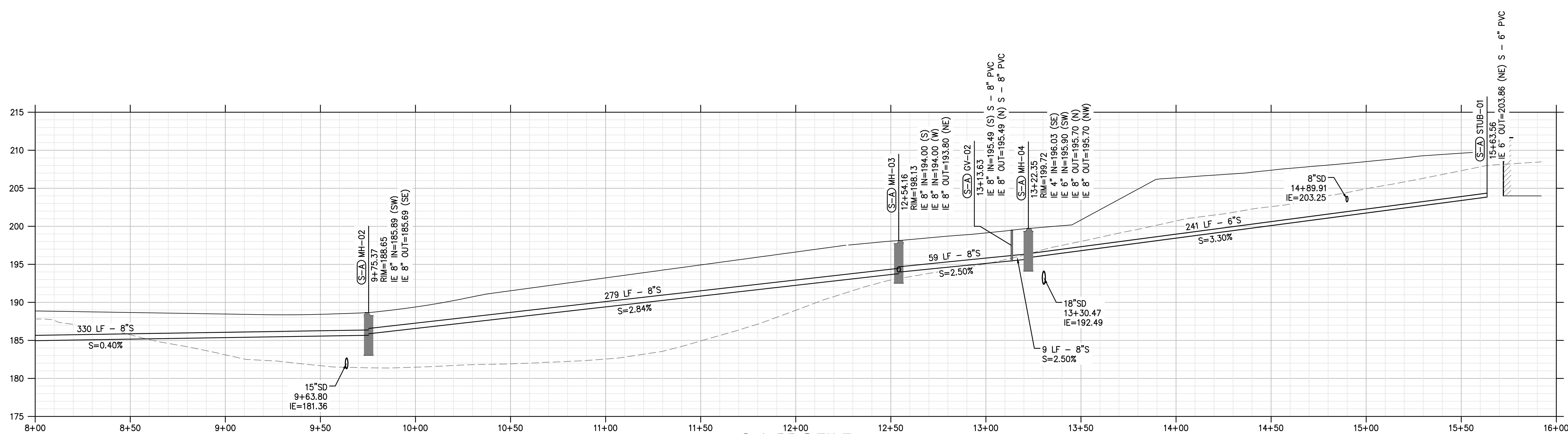
Plotted by: SERA Design and Architecture, Inc.



S-A PROFILE
STA -0+50.00 TO 8+00.00

SCALE: HORIZ: 1" = 30'
VERT: 1" = 8'



S-A PROFILE
STA 8+00.00 TO 16+00.00

SCALE: HORIZ: 1" = 30'
VERT: 1" = 8'

SERA

ARCHITECTURE
URBAN DESIGN + PLANNING
INTERIOR DESIGN

PORTLAND OREGON 97209
P: 503.445.7372
F: 503.445.7395
SERADESIGN.COM

Dreyfuss+ Blackford architecture

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Portland, OR 97204
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F: 503.274.4681
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PORTLAND GENERAL ELECTRIC INTEGRATED OPERATIONS CENTER

PORTLAND GENERAL ELECTRIC
12150 SW TUALATIN-SHERWOOD ROAD
TUALATIN, OR 97062

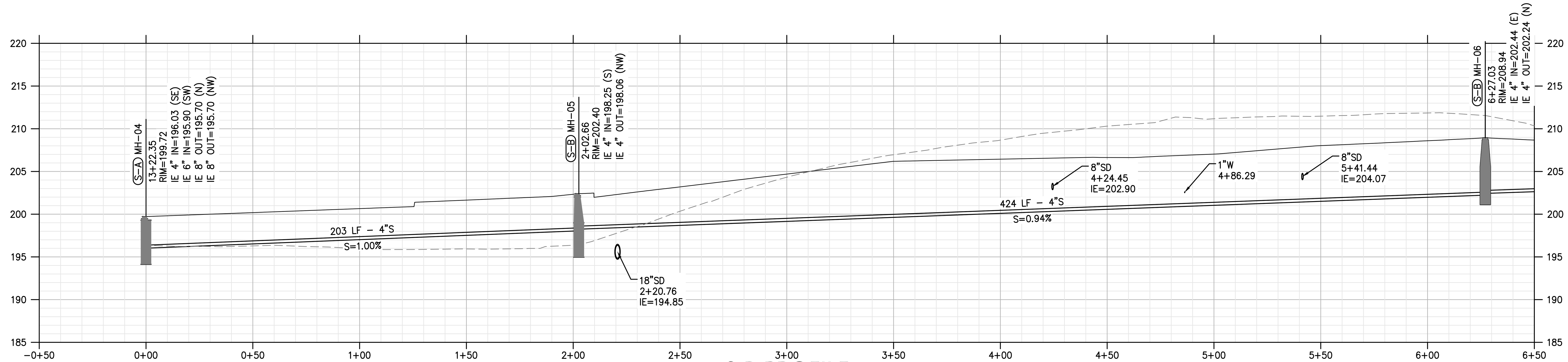
EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

REVISIONS

CHECKED BY:	MR
ISSUE DATE:	3 JUNE 2019
PROJECT NO:	P18-003

OVERALL STORM DRAINAGE PLAN

MG C610



S-B PROFILE

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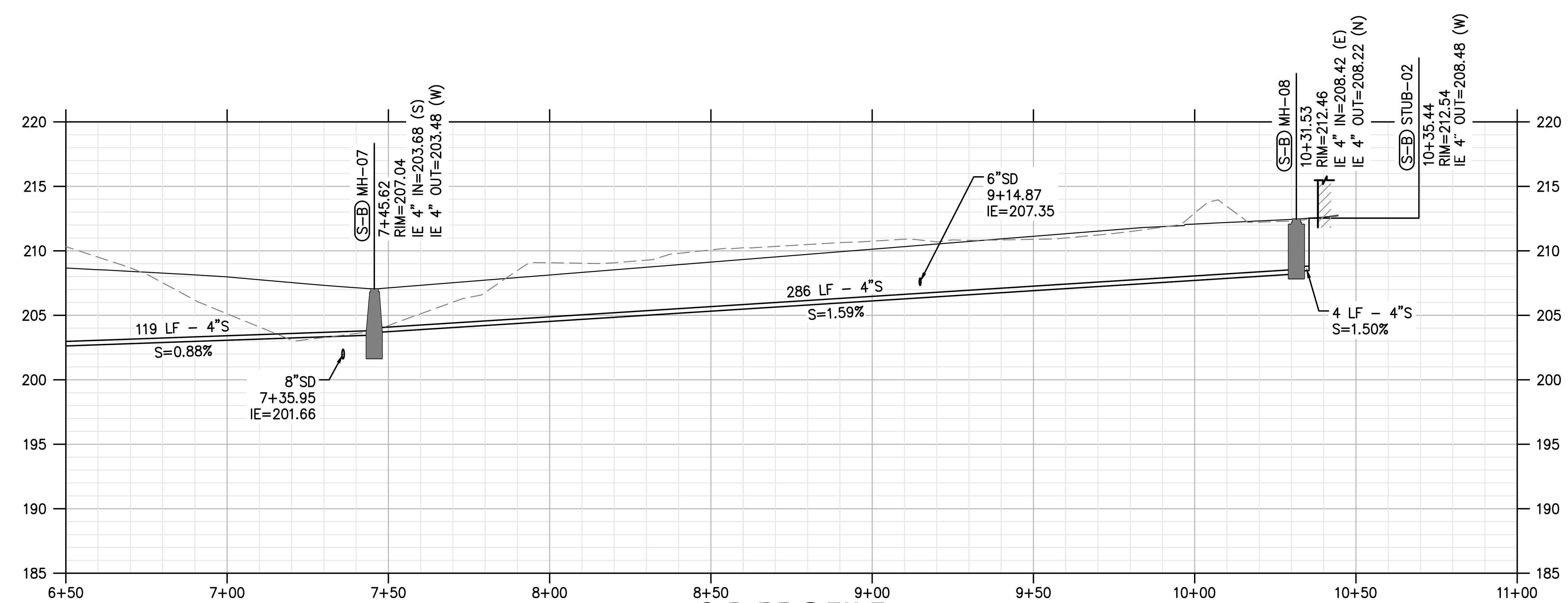
VERT: 1" = 8'



S-B PROFILE

STA 6+50.00 TO 11+00.00

SCALE: HORIZ: 1" = 30'
VERT: 1" = 8'

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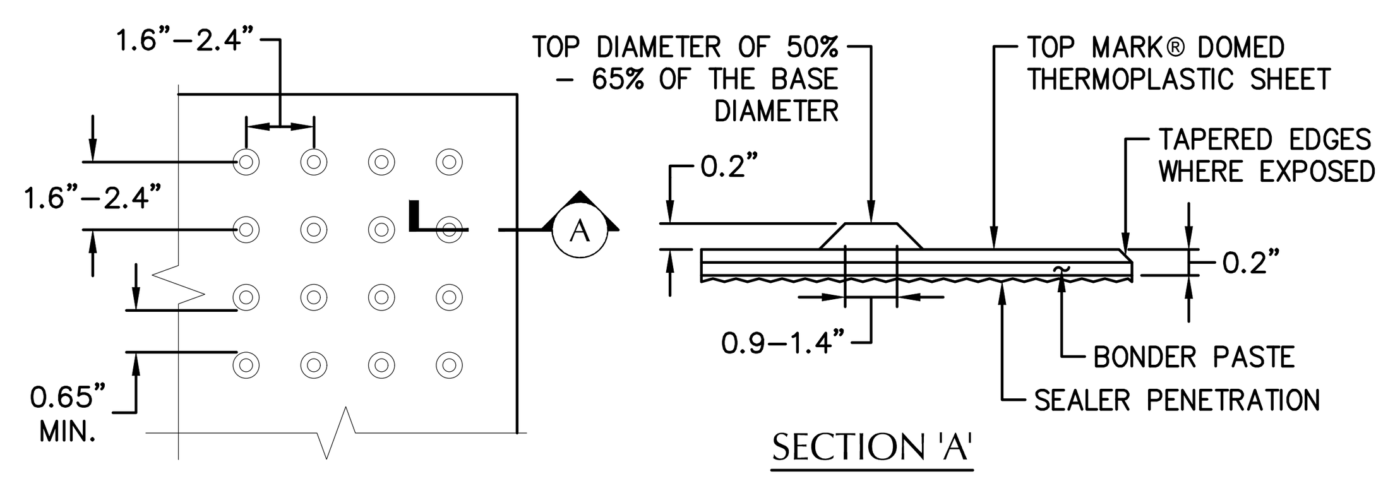
EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

REVISIONS

CHECKED BY: MR
ISSUE DATE: 3 JUNE 2019
PROJECT NO: P18-003

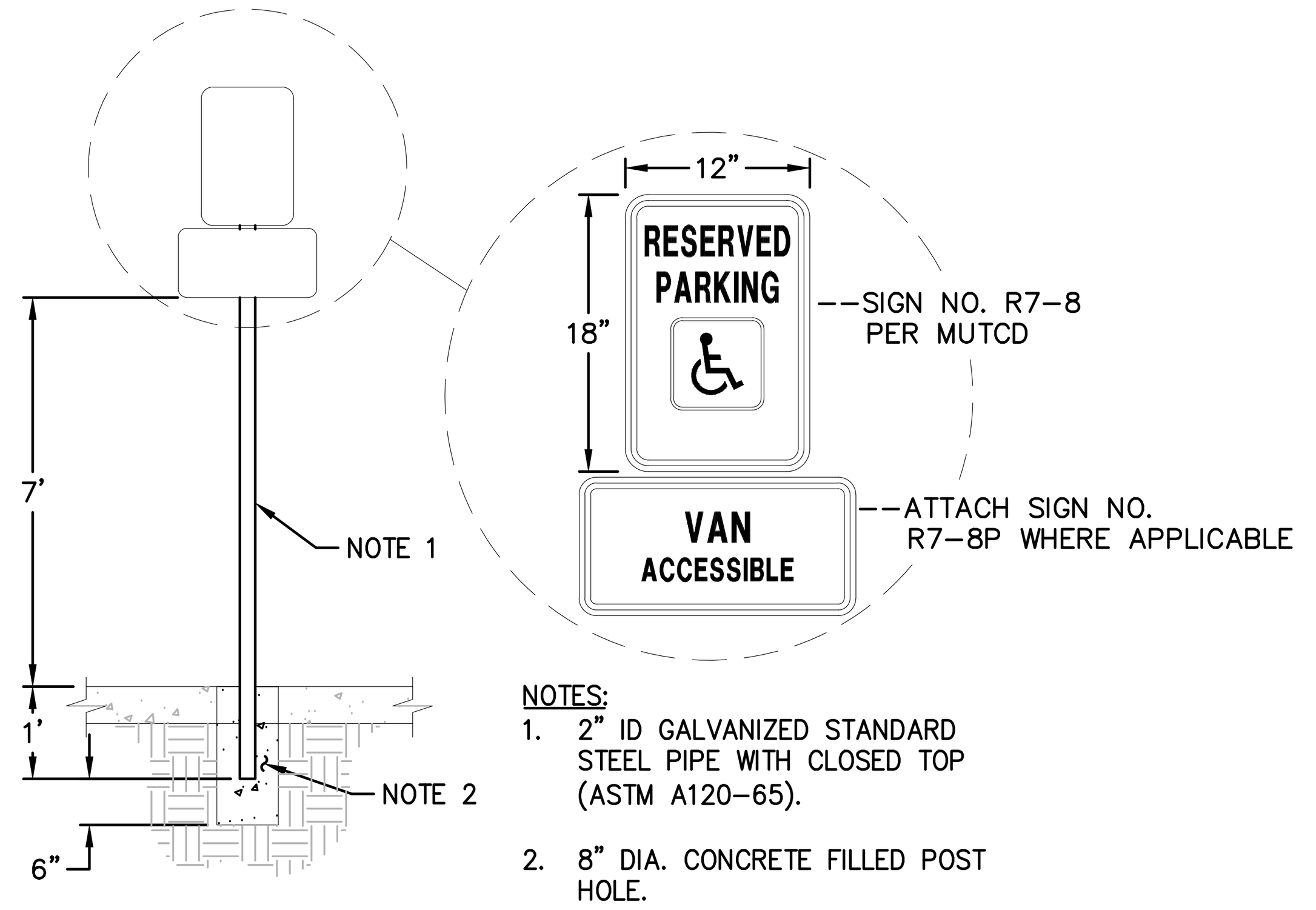
OVERALL STORM DRAINAGE PLAN

MG C611



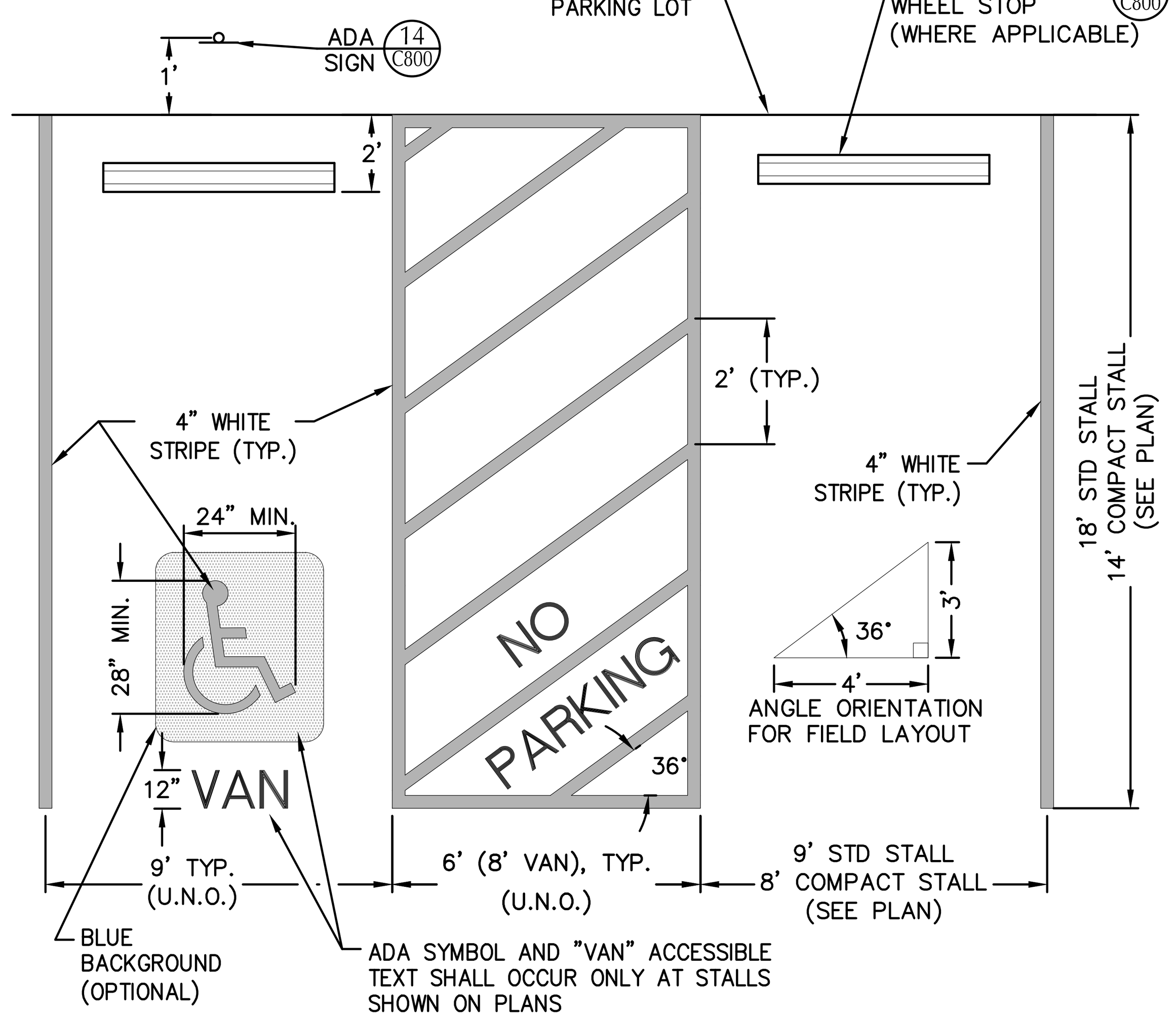
NOTES:
1. DETECTABLE WARNINGS SHALL BE INSTALLED AS SHOWN IN PLANS AND DETAILS AND TO THE FULL WIDTH OF CURB RAMP OR FLUSH SURFACE. THE DETECTABLE WARNING SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE OR OTHER POTENTIAL HAZARD IS 6 TO 8 INCHES FROM THE CURB LINE OR OTHER POTENTIAL HAZARD.
2. DETECTABLE WARNING 24"X24" PAVER TYPE–COLOR TO BE CHARCOAL CONCRETE SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

13 DETECTABLE WARNING - TYPE 1
SCALE: NTS

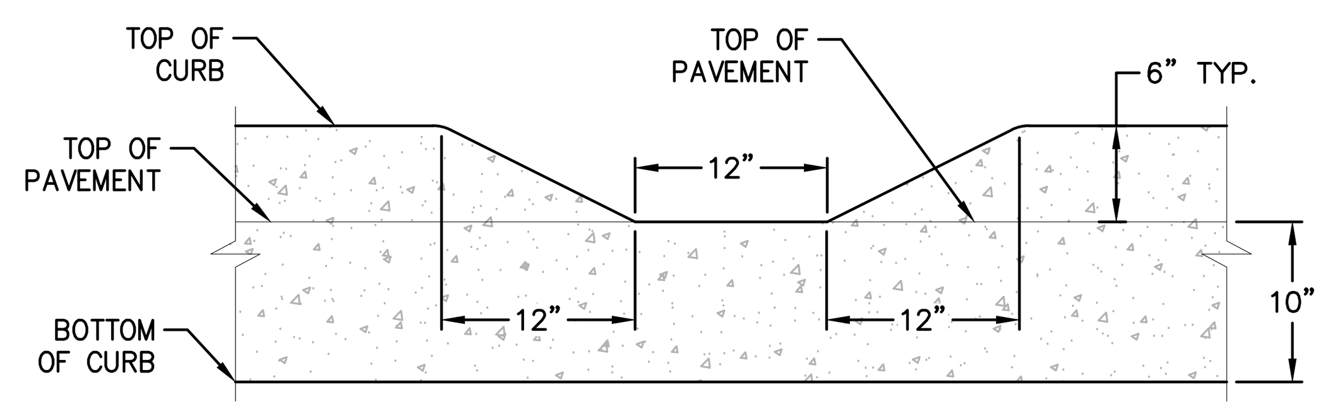


NOTES:
1. 2" ID GALVANIZED STANDARD STEEL PIPE WITH CLOSED TOP (ASTM A120–65).
2. 8" DIA. CONCRETE FILLED POST HOLE.

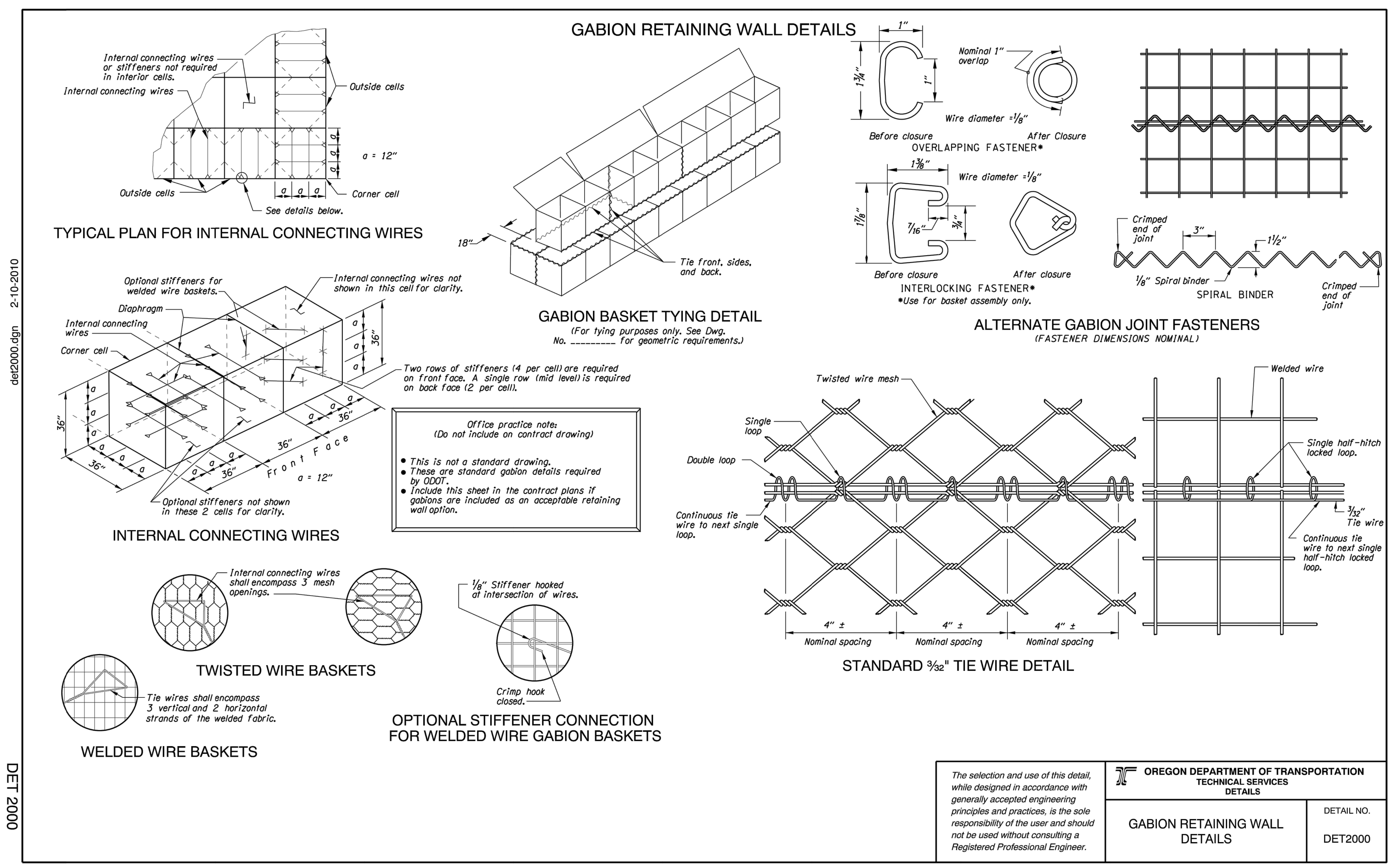
14 ADA PARKING SIGN - TYPE 1
SCALE: NTS



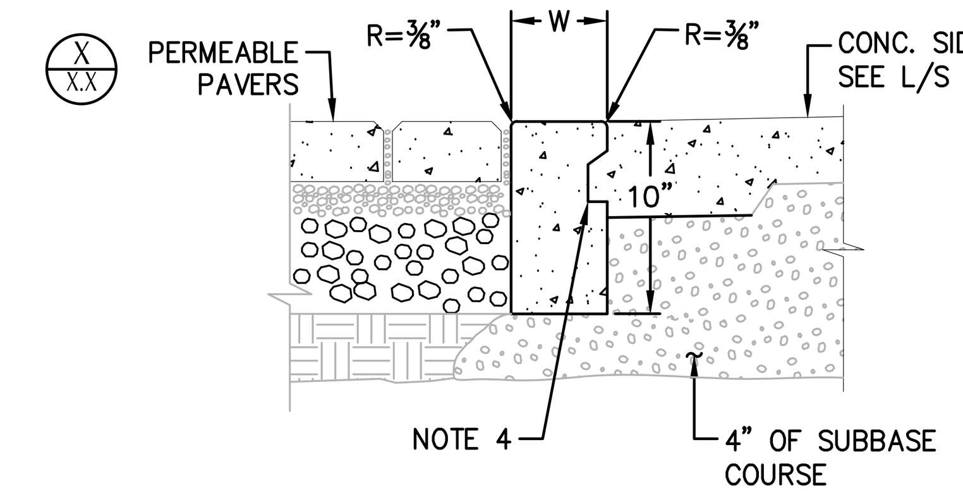
11 TYPICAL PARKING LAYOUT
SCALE: NTS



12 CURB SPILLWAY - TYPE 1
SCALE: NTS

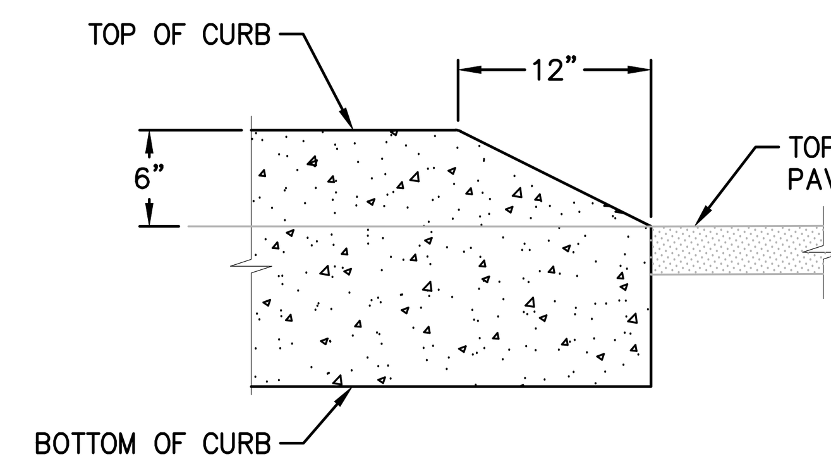


15 GABION RETAINING WALL DETAILS
SCALE: NTS

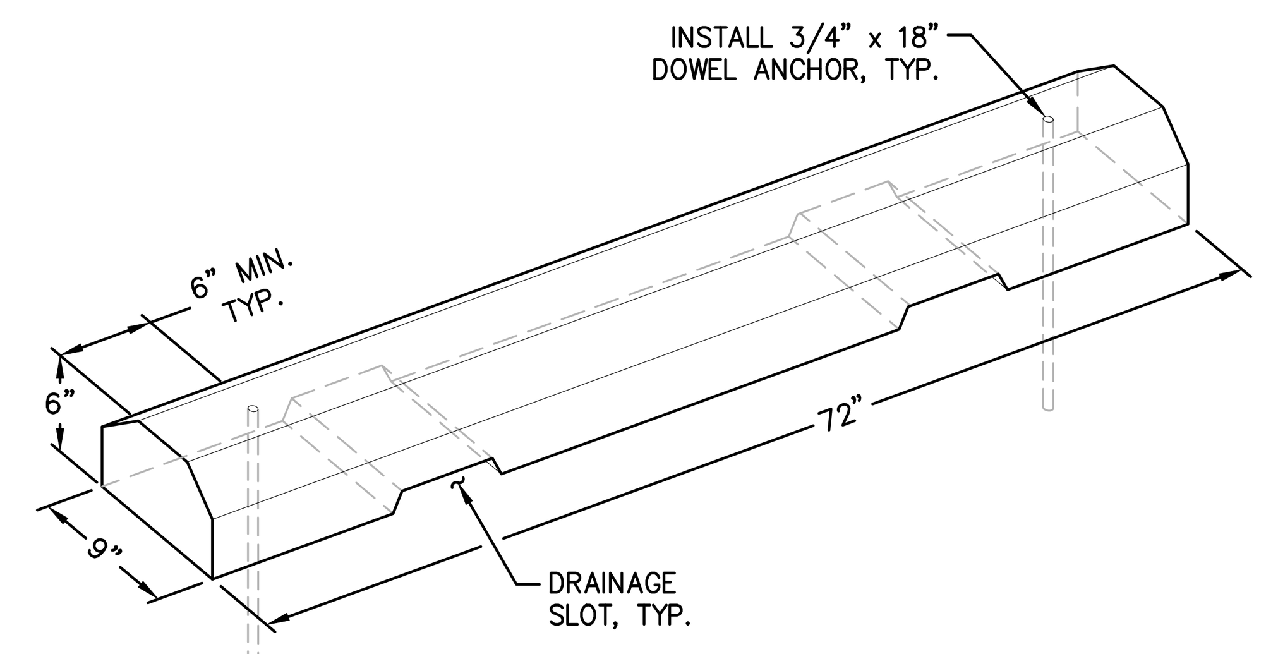


NOTES:
1. CURB/BAND IS FLUSH WITH ADJACENT SURFACES.
2. CURB/BAND WIDTH 'W' = 6" IN CURB AREAS, 'W' = 12" AT DRIVEWAYS, AS NOTED ON PLANS.
3. CONSTRUCT CONTRACTION JOINTS AT 15' MAX. SPACING AND AT RAMPS. CONSTRUCT EXPANSION JOINTS AT 200' MAX SPACING AT POINTS OF TANGENCY AND AT ENDS OF EACH DRIVEWAY.
4. TAPERED 2"x4" KEYWAY TO BE FORMED AS SHOWN.
5. DIMENSIONS ARE NOMINAL AND MAY VARY TO CONFORM WITH CURB MACHINE AS APPROVED BY THE ENGINEER.

6 FLUSH CONCRETE CURB/BAND
SCALE: NTS

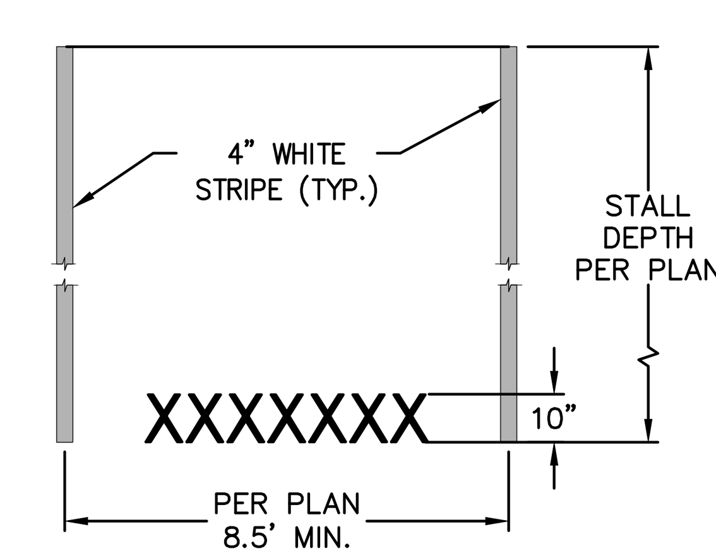


7 CONCRETE CURB - ENDING
SCALE: NTS



NOTES:
1. DIMENSIONS ARE NOMINAL AND MAY VARY TO CONFORM TO MANUFACTURER'S PRODUCTS APPROVED BY ENGINEER.

8 PRECAST CONCRETE WHEEL STOP
SCALE: NTS

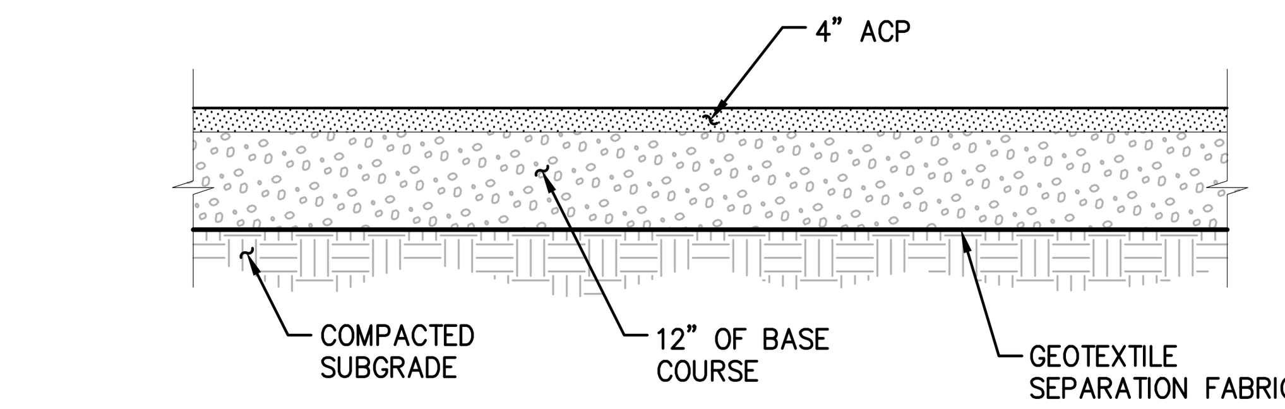


NOTES:
1. REFERENCE PLANS FOR STALL TYPES.
2. STRIPING MATERIAL TO BE THERMAL PLASTIC OR OTHER HEAVY–DUTY MATERIAL THAT WILL HAVE RELATIVELY LITTLE MAINTENANCE.

9 STALL DESIGNATION STRIPING
SCALE: NTS

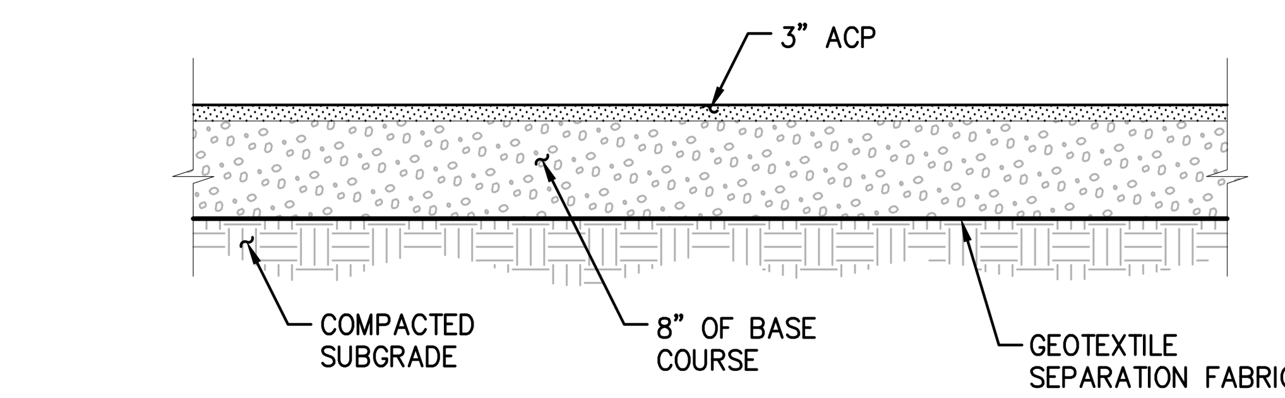
NOTES:
1. STRIPING TO MEET {JURISDICTION} CODE SECTION {REFERENCE NO.}.
2. STRIPING MATERIAL TO BE THERMAL PLASTIC OR OTHER HEAVY–DUTY MATERIAL THAT WILL HAVE RELATIVELY LITTLE MAINTENANCE.

10 CROSSWALK STRIPING
SCALE: NTS



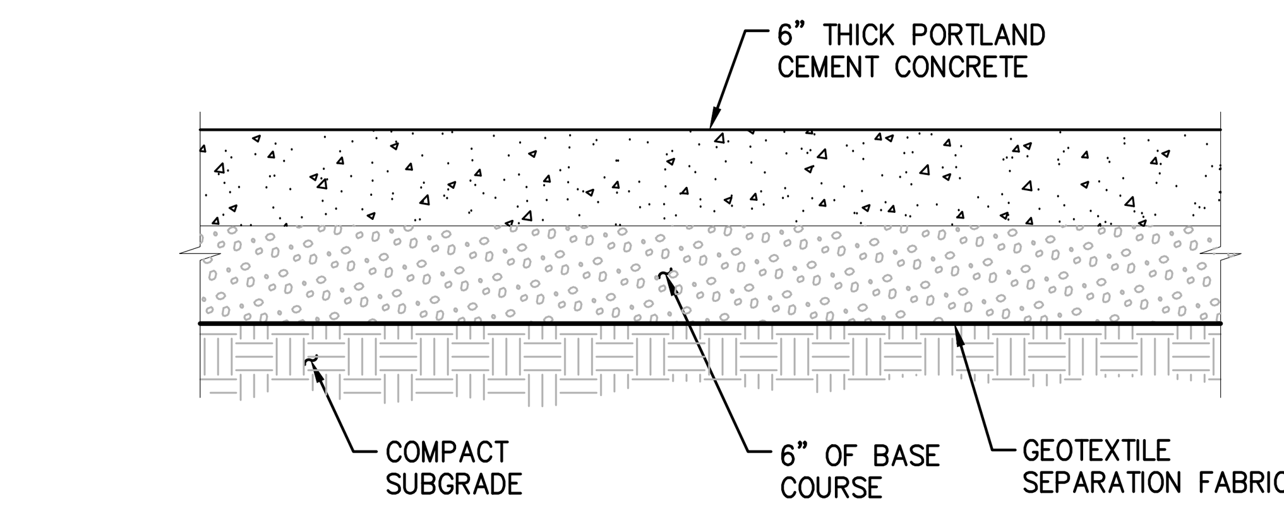
NOTES:
1. THIS PAVEMENT SECTION ASSUMES PAVEMENT CONSTRUCTION DURING THE DRY SEASON. DURING WET–WEATHER CONSTRUCTION ADDITIONAL BASE COURSE MAY BE REQUIRED.

1 ASPHALT PAVEMENT SECTION - ROADWAY
SCALE: NTS



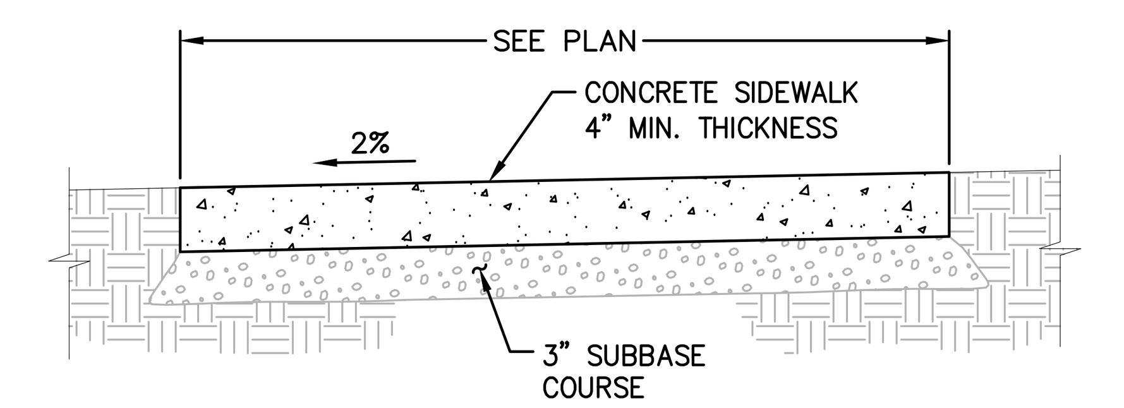
NOTES:
1. THIS PAVEMENT SECTION ASSUMES PAVEMENT CONSTRUCTION DURING THE DRY SEASON. DURING WET–WEATHER CONSTRUCTION ADDITIONAL BASE COURSE MAY BE REQUIRED.

2 ASPHALT PAVEMENT SECTION - PARKING STALLS
SCALE: NTS



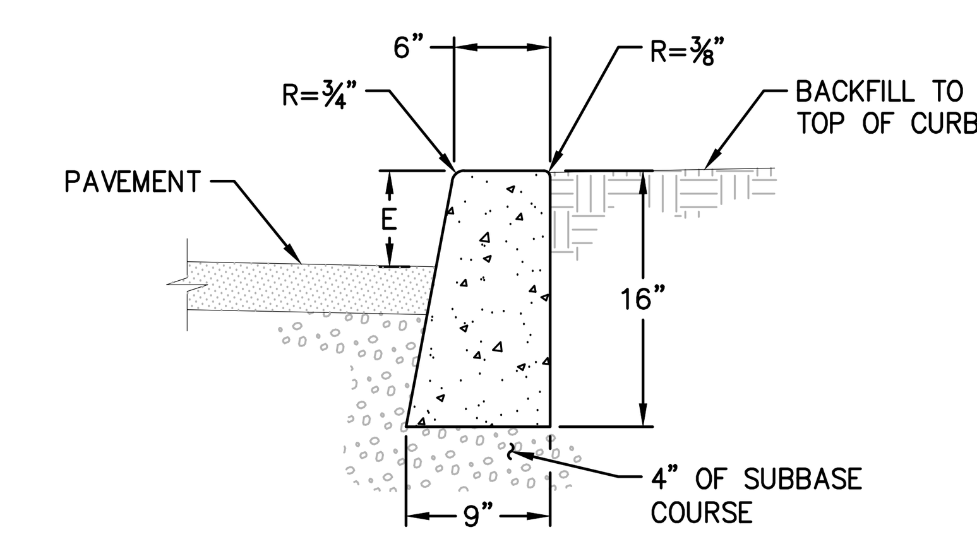
NOTES:
1. – CONSTRUCT CONTRACTION JOINTS AT 15' MAX. SPACING AND AT RAMPS.
   – CONSTRUCT EXPANSION JOINTS AT 200' MAX. SPACING AT POINTS OF TANGENCY AND AT ENDS OF EACH DRIVEWAY.
2. PROVIDE MEDIUM TO COARSE BROOM FINISH.
3. THIS PAVEMENT SECTION ASSUMES PAVEMENT CONSTRUCTION DURING THE DRY SEASON. DURING WET–WEATHER CONSTRUCTION ADDITIONAL BASE COURSE MAY BE REQUIRED.

3 CONCRETE PAVEMENT SECTION
SCALE: NTS



NOTES:
1. CONSTRUCT CONTRACTION JOINTS AT 15' MAX. SPACING AND AT RAMPS. CONSTRUCT EXPANSION JOINTS AT 200' MAX SPACING, AT POINTS OF TANGENCY AND AT ENDS OF EACH DRIVEWAY, UNLESS NOTED OTHERWISE.

4 CONCRETE SIDEWALK
SCALE: NTS



NOTES:
1. CURB EXPOSURE 'E' = 6", TYP. VARY AS SHOWN ON PLANS OR AS DIRECTED.
2. CONSTRUCT CONTRACTION JOINTS AT 15' MAX. SPACING AND AT RAMPS. CONSTRUCT EXPANSION JOINTS AT 200' MAX SPACING AT POINTS OF TANGENCY AND AT ENDS OF EACH DRIVEWAY.
3. TOPS OF ALL CURBS SHALL SLOPE TOWARD THE ROADWAY AT 2% UNLESS OTHERWISE SHOWN OR AS DIRECTED.
4. DIMENSIONS ARE NOMINAL AND MAY VARY TO CONFORM WITH CURB MACHINE AS APPROVED BY THE ENGINEER.

5 CONCRETE CURB - STANDARD
SCALE: NTS

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PORTLAND GENERAL ELECTRIC
12150 SW TUALATIN-SHERWOOD ROAD
TUALATIN, OR 97062

EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

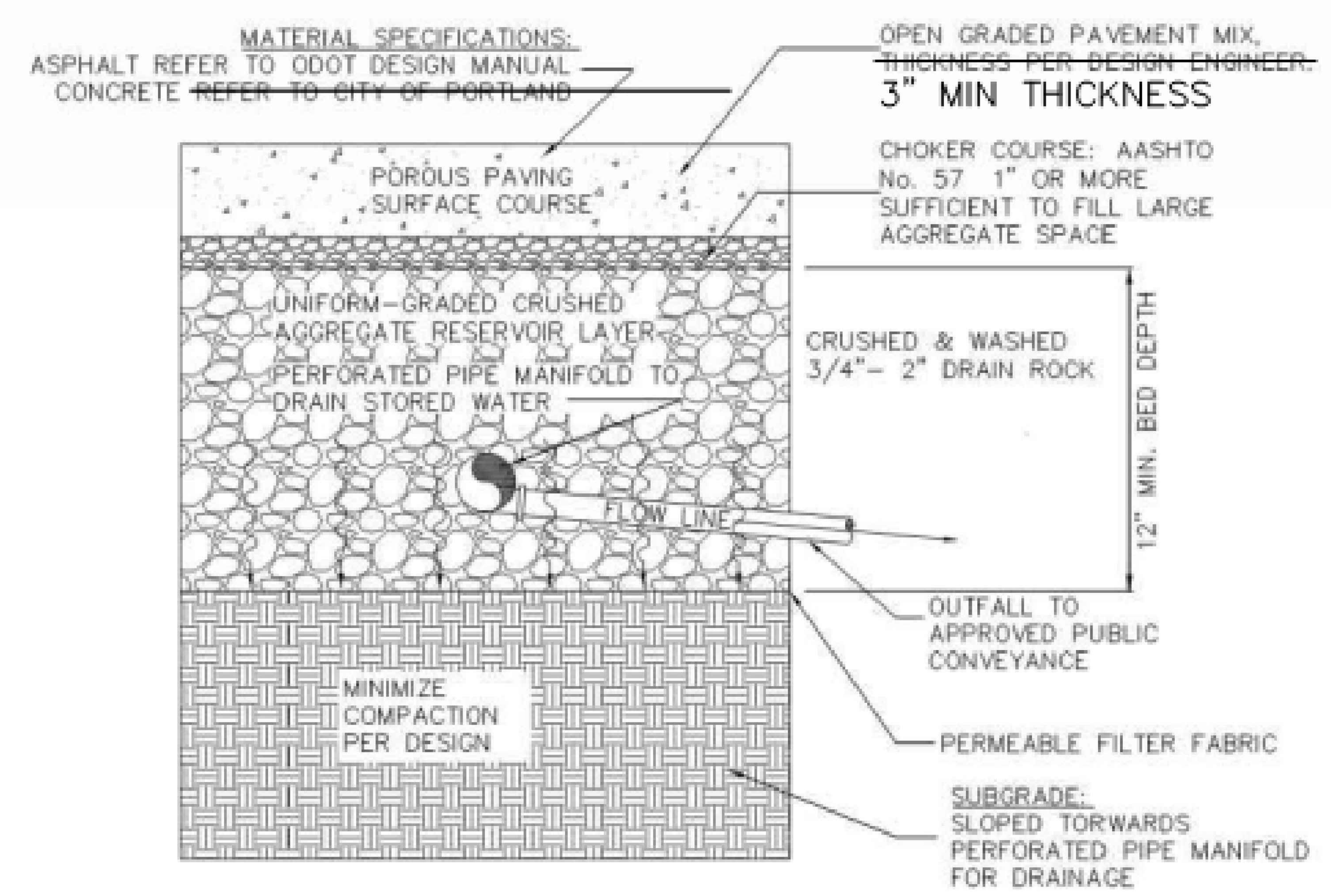
REVISIONS

CHECKED BY:	MR
ISSUE DATE:	3 JUNE 2019
PROJECT NO:	P18-003

DETAILS

MG C800

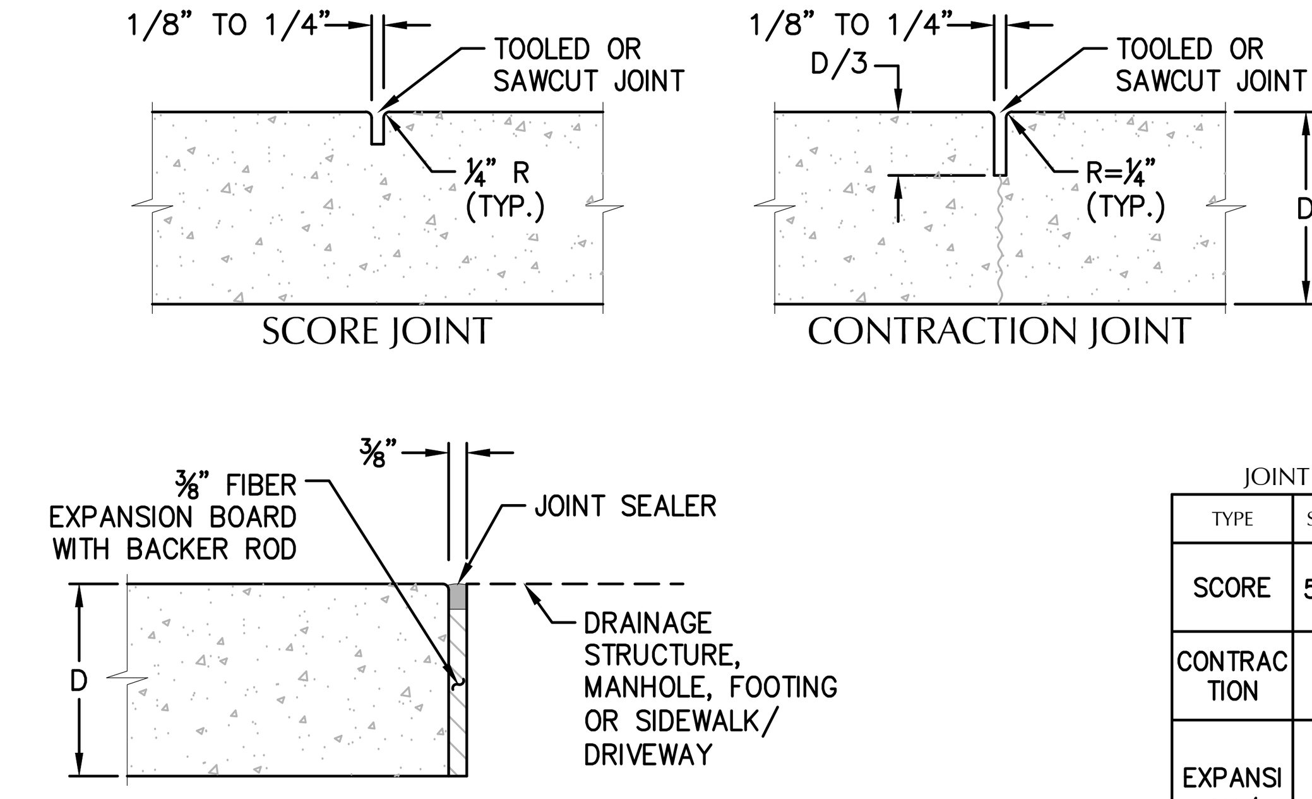
File: N:\c\p\2018\180045-PGE-Integrated-Operations-Center\CAD\PLOT\8045-C800-DET.dwg TAB:C800
Plotted: 5/31/19 at 1:45pm By: JSweeney
SERA Design and Architecture, Inc.
3/11/2019 9:59:29 AM



NOTES:

1. PAVEMENT SURFACE TO BE CONSTRUCTED WITH HIGH PERMEABILITY (> 8" PER HR).
2. UNIFORM-GRADED CRUSHED DRAIN ROCK BED WITH MINIMUM 40% VOID SPACE
3. PROVIDE PERFORATED PIPE MANIFOLD IN RESERVOIR LAYER FOR CONVEYANCE, IF UNFACTORED SOIL INFILTRATION RATES LESS THAN 2"/HOUR. SEE PERFORATED PIPE DRAWING NO. 463.
4. NOT RECOMMENDED FOR TRAFFIC SURFACES WITH SLOPE > 5%.
5. DO NOT PLACE DRAIN ROCK BED ON COMPACTED FILL AREAS.
6. HIGHEST SEASONAL WATER TABLE MUST BE AT LEAST 5' BELOW RESERVOIR LAYER. STRUCTURE MUST BE 100' AWAY FROM DRINKING WATER WELL. MINIMUM OF 100' AWAY UP SLOPE & 10' AWAY DOWN SLOPE FROM STRUCTURE FOUNDATIONS. A WRITTEN REPORT IS REQUIRED.
7. FLOWS FROM OTHER IMPERVIOUS AREAS SHALL NOT DRAIN TO POROUS PAVEMENT.

4 OPEN GRADED ASPHALT PAVEMENT
SCALE: NTS



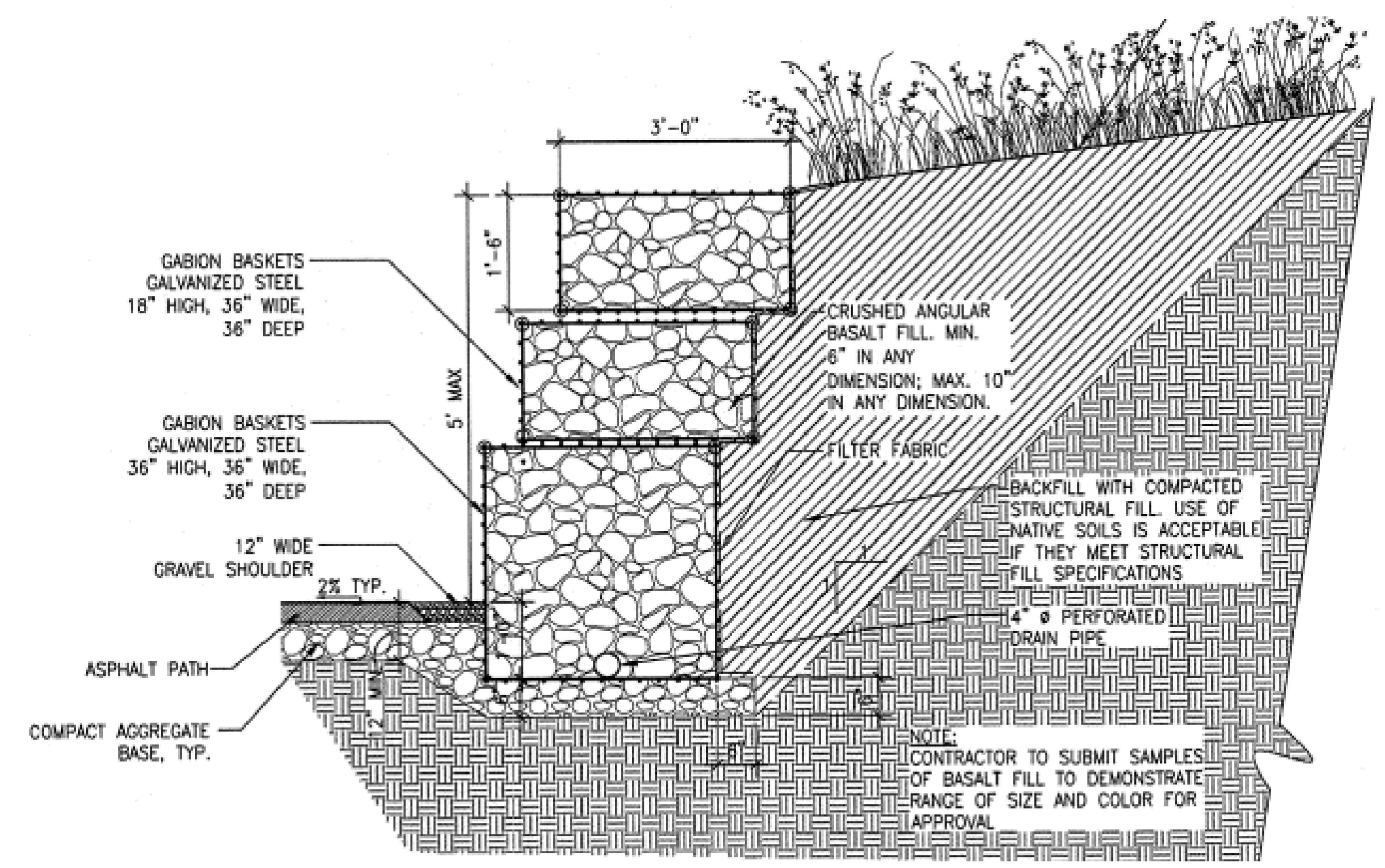
JOINT INTERVALS TABLE

TYPE	SPACING	OR AT...
SCORE	5' TYP.	LOCATIONS SHOWN ON PLANS
CONTRACTION	15' MAX.	END OF RAMPS AND DRIVEWAYS
EXPANSION/ ISOLATION	200' *	POINTS OF TANGENCY AND AT ENDS OF EACH DRIVEWAY OR OTHER FIXED OBJECTS

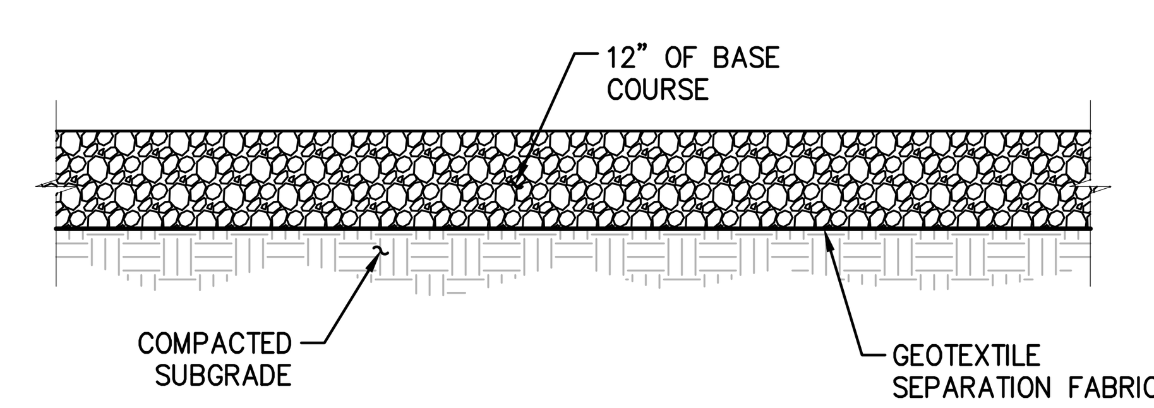
* MONOLITHIC CURB AND SIDEWALK SHALL BE 45' MAX.

NOTES:
1. CONTRACTION JOINTS MAY BE USED IN PLACE OF SCORE JOINTS.
2. CONSTRUCTION COLD JOINTS MAY BE USED IN PLACE OF CONTRACTION JOINTS.
3. PROVIDE MEDIUM BROOM FINISH WITH NO TOOL MARKS.

1 SIDEWALK JOINTS
SCALE: NTS



2 GABION RETAINING WALL
SCALE: NTS



NOTES:
1. THIS PAVEMENT SECTION ASSUMES PAVEMENT CONSTRUCTION DURING THE DRY SEASON. DURING WET-WEATHER CONSTRUCTION ADDITIONAL BASE COURSE MAY BE REQUIRED.

3 GRAVEL PAVEMENT
SCALE: NTS

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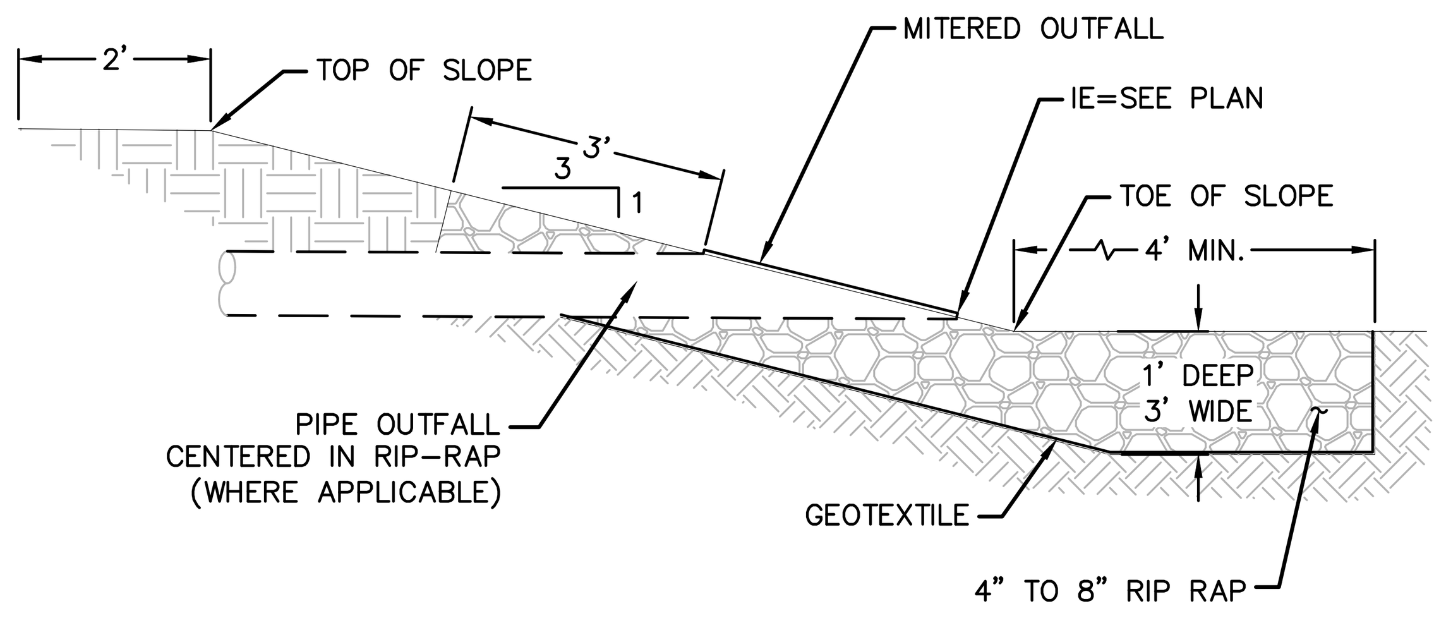
EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

REVISIONS

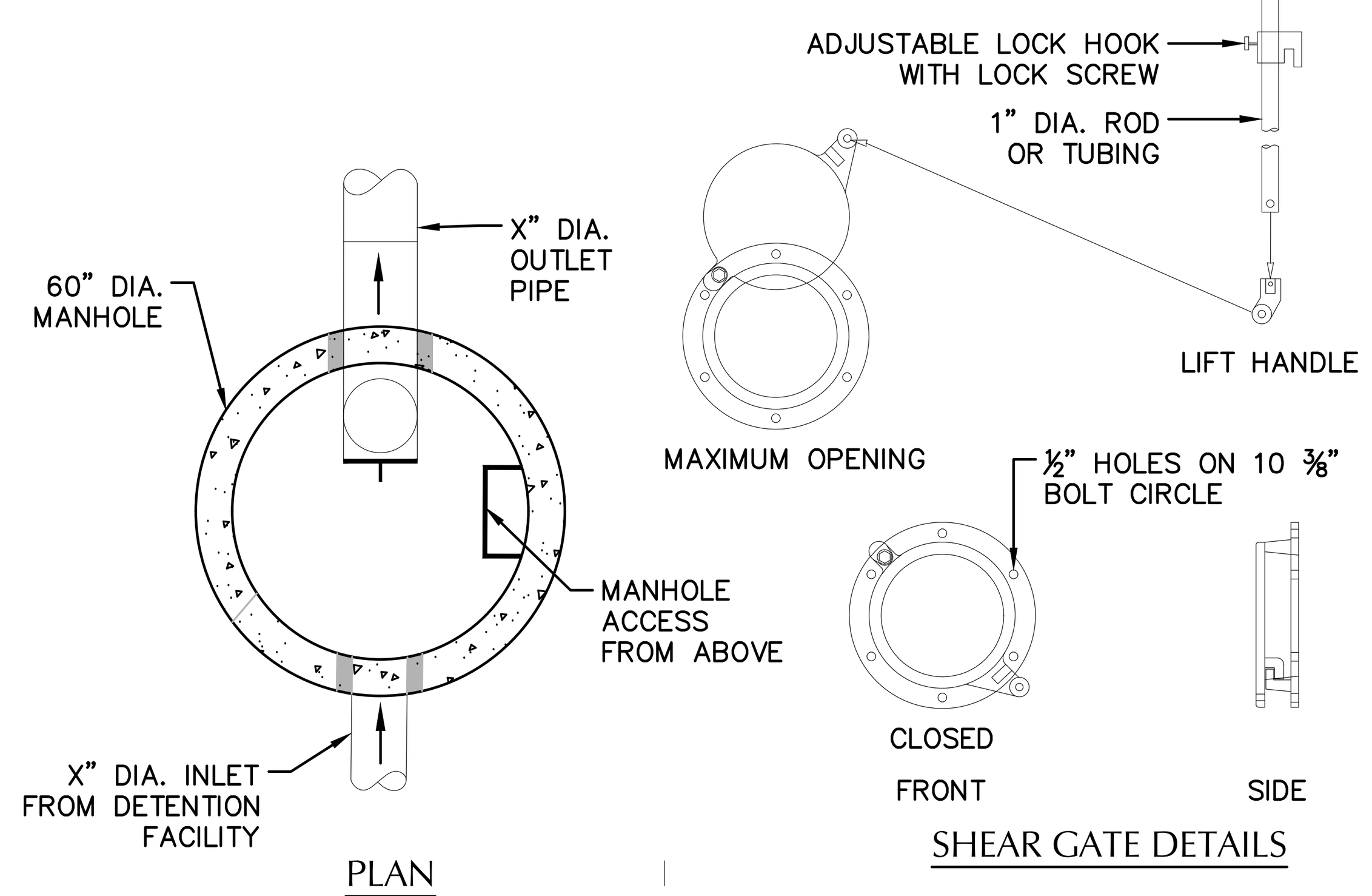
CHECKED BY: MR
ISSUE DATE: 3 JUNE 2019
PROJECT NO: P18-003

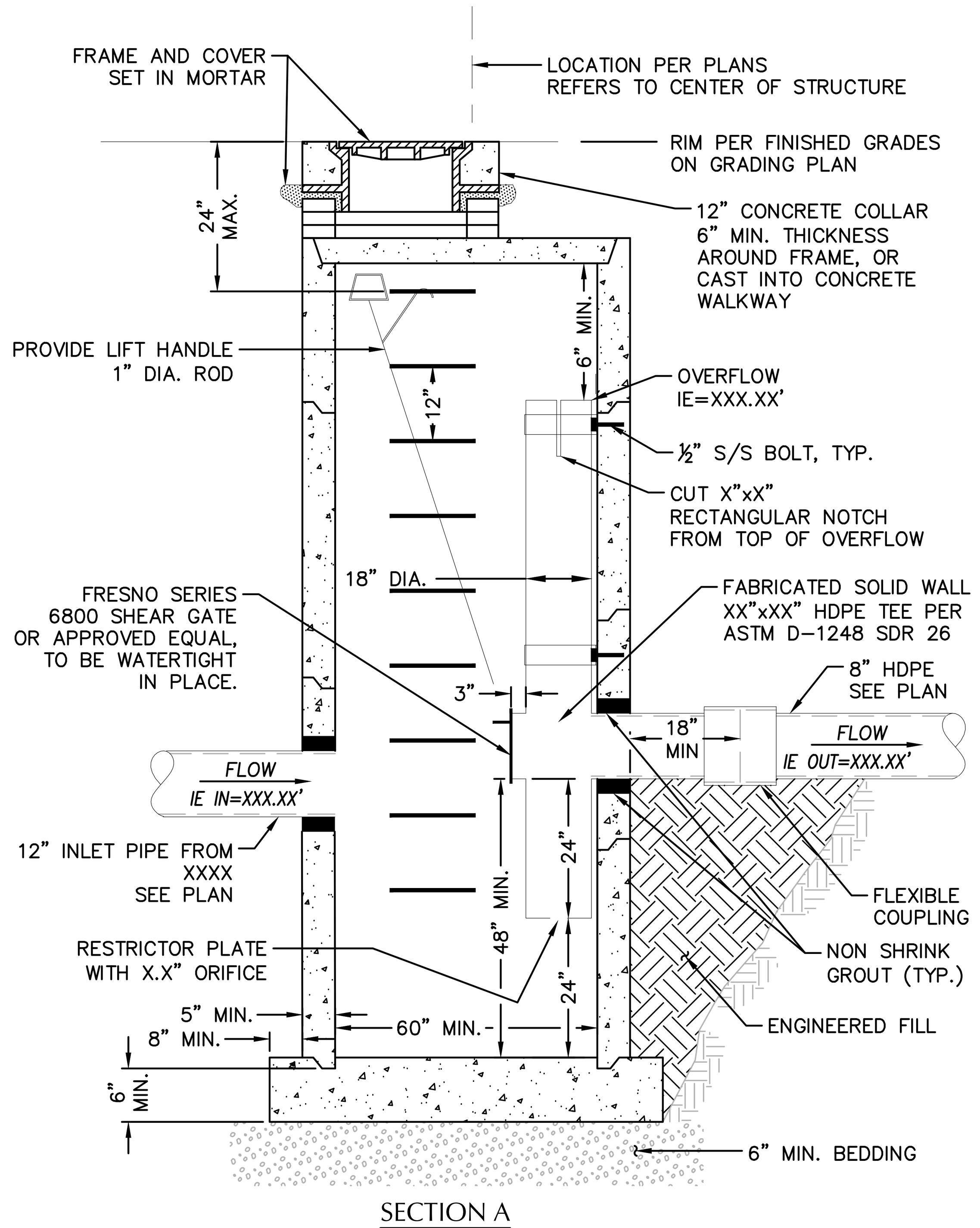
DETAILS

MG C801

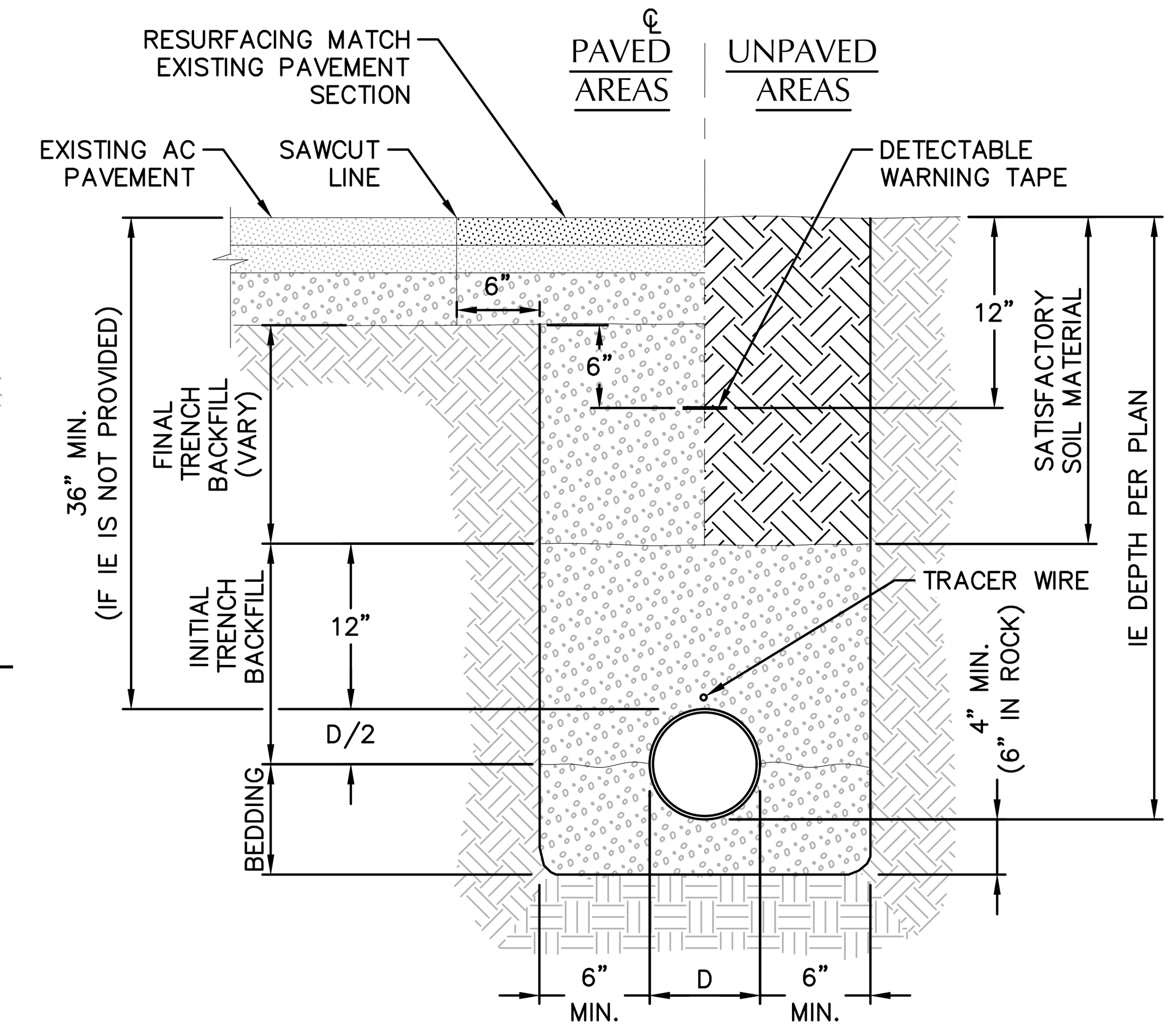


9 TYPICAL OUTFALL RIP-RAP PROTECTION
SCALE: NTS

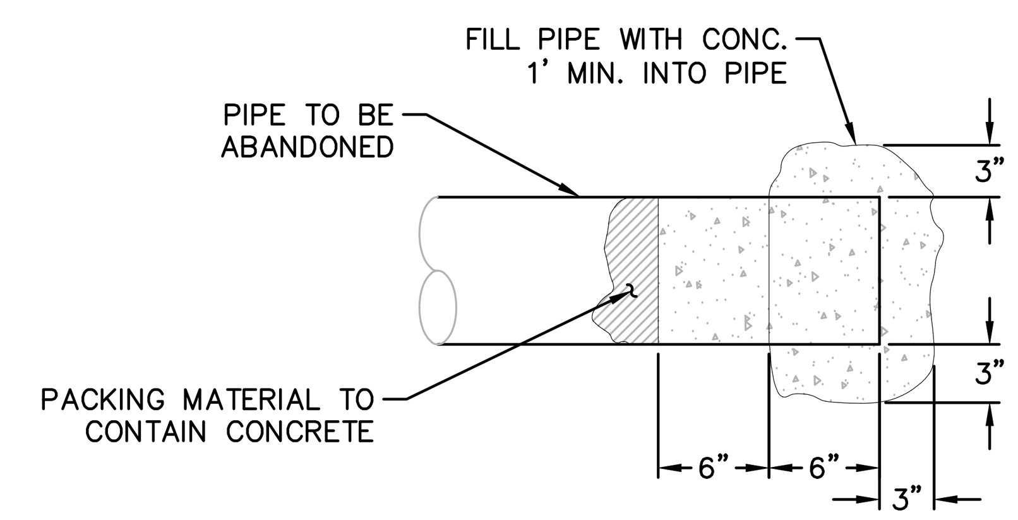

60" DIA.
MANHOLE
X" DIA.
OUTLET
PIPE
MANHOLE
ACCESS
FROM ABOVE
X" DIA. INLET
FROM DETENTION
FACILITY
PLAN
ADJUSTABLE LOCK HOOK
WITH LOCK SCREW
1" DIA. ROD
OR TUBING
LIFT HANDLE
MAXIMUM OPENING
½" HOLES ON 10 ⅜"
BOLT CIRCLE
CLOSED
FRONT
SIDE
SHEAR GATE DETAILS


FRAME AND COVER
SET IN MORTAR
LOCATION PER PLANS
REFERS TO CENTER OF STRUCTURE
RIM PER FINISHED GRADES
ON GRADING PLAN
24" MAX.
12" CONCRETE COLLAR
6" MIN. THICKNESS
AROUND FRAME, OR
CAST INTO CONCRETE
WALKWAY
PROVIDE LIFT HANDLE
1" DIA. ROD
12"
6" MIN.
OVERFLOW
IE=XXX.XX'
½" S/S BOLT, TYP.
CUT X"xX"
RECTANGULAR NOTCH
FROM TOP OF OVERFLOW
18" DIA.
FRESNO SERIES
6800 SHEAR GATE
OR APPROVED EQUAL,
TO BE WATERTIGHT
IN PLACE.
FABRICATED SOLID WALL
XX"xXX" HDPE TEE PER
ASTM D-1248 SDR 26
8" HDPE
SEE PLAN
3"
18" MIN
FLOW
IE OUT=XXX.XX'
FLOW
IE IN=XXX.XX'
12" INLET PIPE FROM
XXXX
SEE PLAN
48" MIN.
24"
24"
FLEXIBLE
COUPLING
NON SHRINK
GROUT (TYP.)
RESTRICTOR PLATE
WITH X.X" ORIFICE
5" MIN.
8" MIN.
60" MIN.
ENGINEERED FILL
6" MIN.
6" MIN. BEDDING
SECTION A

10 FLOW CONTROL MANHOLE FCMH-01
SCALE: NTS

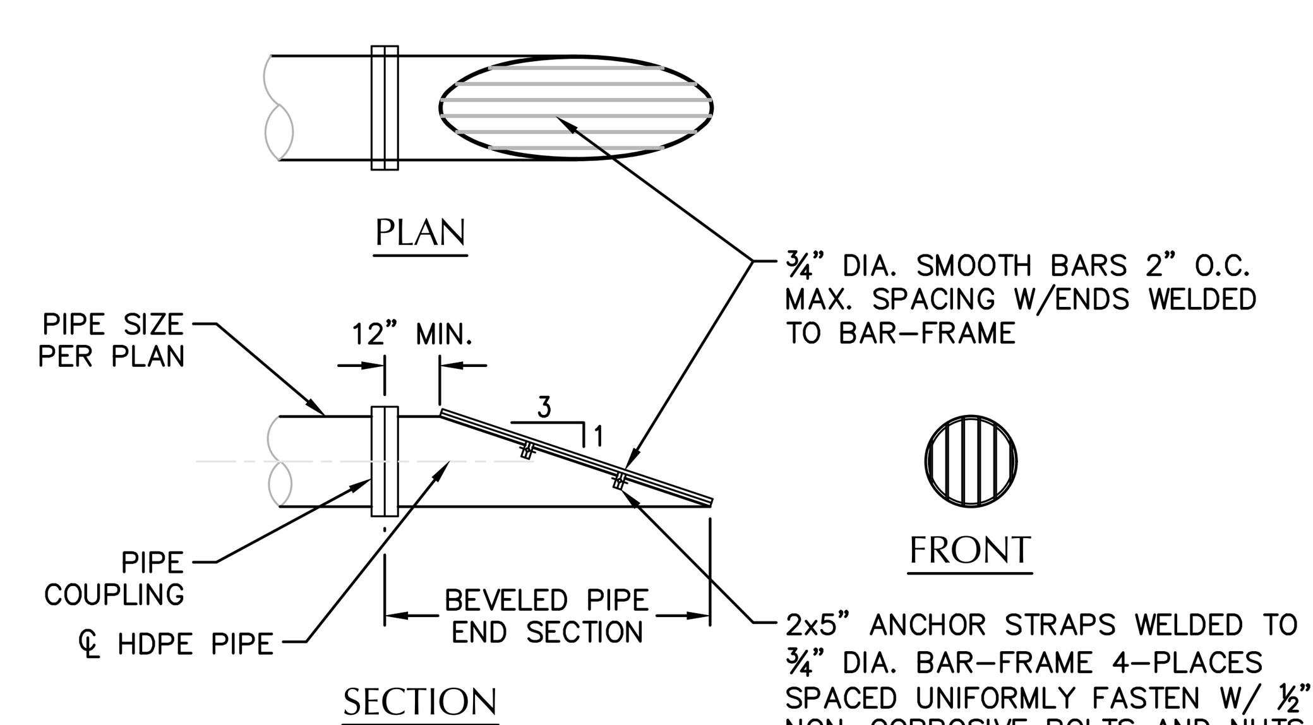

RESURFACING MATCH
EXISTING PAVEMENT
SECTION
PAVED
AREAS
UNPAVED
AREAS
EXISTING AC
PAVEMENT
SAWCUT
LINE
DETECTABLE
WARNING TAPE
6"
6"
12"
SATISFACTORY
SOIL MATERIAL
36" MIN.
(IF IE IS NOT PROVIDED)
FINAL
TRENCH
BACKFILL
(VARY)
IE DEPTH PER PLAN
TRACER WIRE
12"
INITIAL
TRENCH
BACKFILL
4" MIN.
(6" IN ROCK)
D/2
BEDDING
6"
MIN.
D
6"
MIN.

5 TYPICAL PIPE BEDDING AND BACKFILL
SCALE: NTS



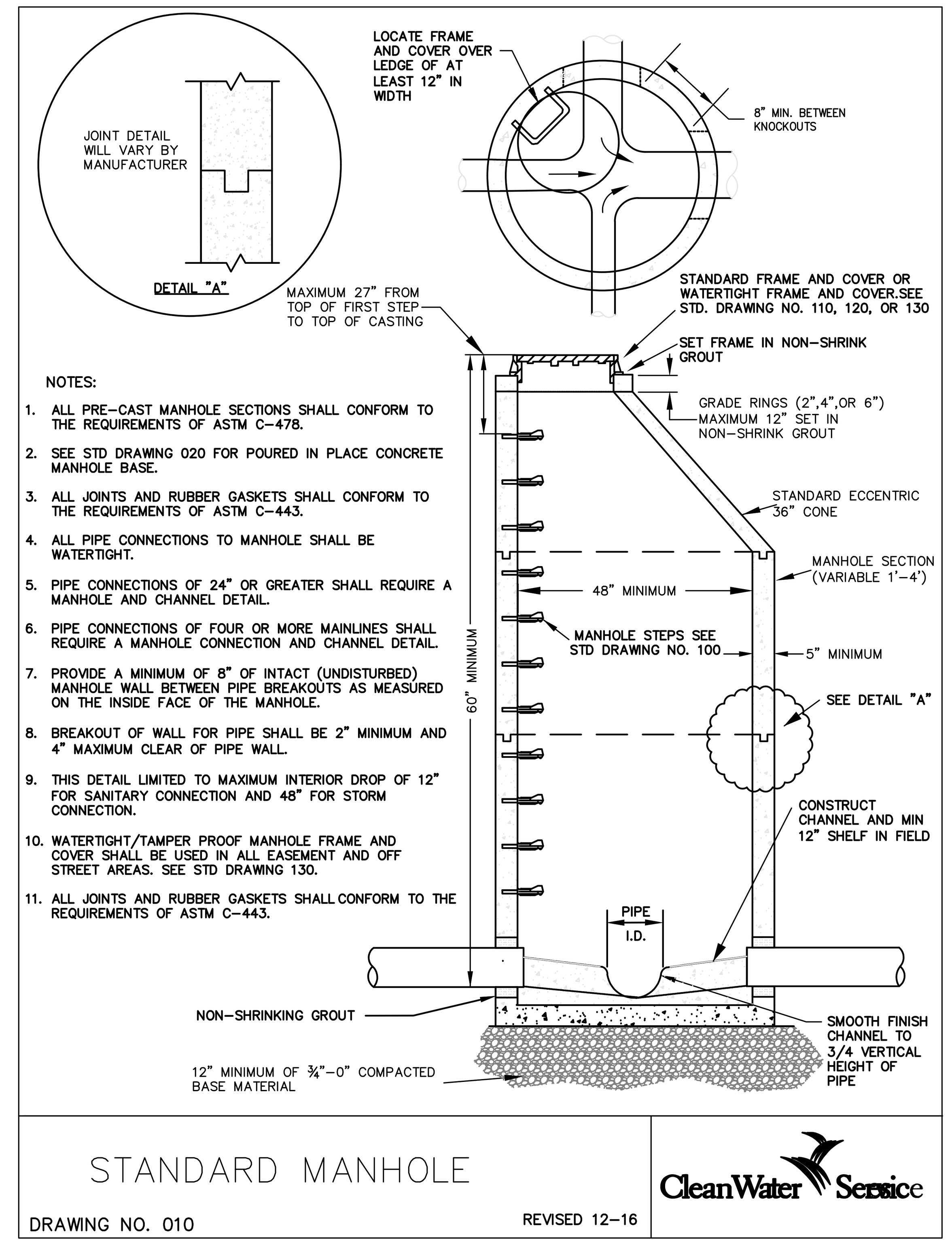
6 UTILITY PLUG FOR ABANDONED PIPE
SCALE: NTS

7 NOT USED
SCALE: NTS

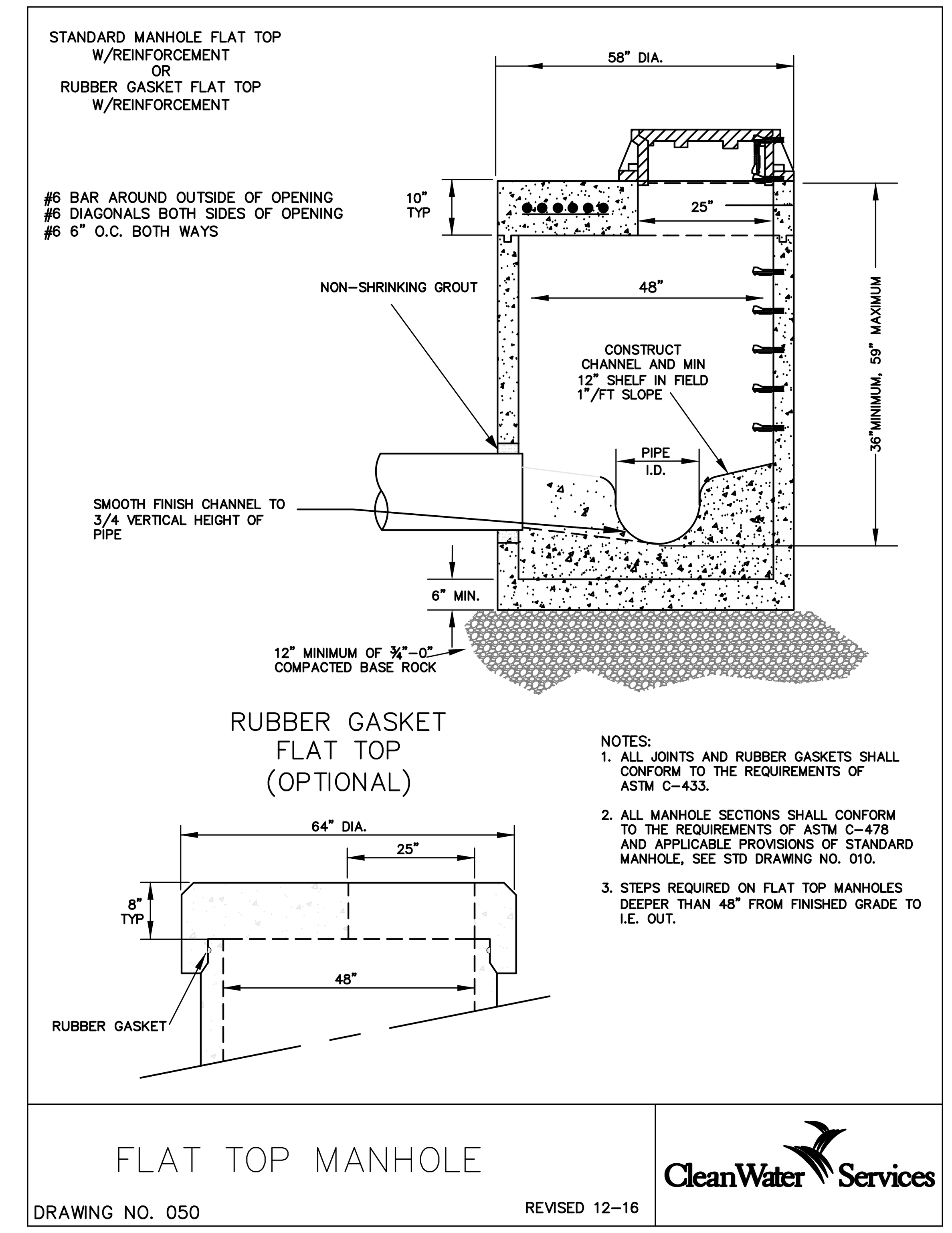

PLAN
¾" DIA. SMOOTH BARS 2" O.C.
MAX. SPACING W/ENDS WELDED
TO BAR-FRAME
PIPE SIZE
PER PLAN
12" MIN.
3
1
PIPE
COUPLING
℄ HDPE PIPE
BEVELED PIPE
END SECTION
SECTION
FRONT
2x5" ANCHOR STRAPS WELDED TO
¾" DIA. BAR-FRAME 4-PLACES
SPACED UNIFORMLY FASTEN W/ ½"
NON-CORROSIVE BOLTS AND NUTS

NOTES:
1. ALL TRASH RACK PARTS AND CONNECTORS MUST BE ALUMINUM, OR ASPHALT COATED GALVANIZED STEEL (TREATMENT 1 OR BETTER).
2. WELD AT ALL JOINTS.
3. SHOP DRAWINGS REQUIRED.

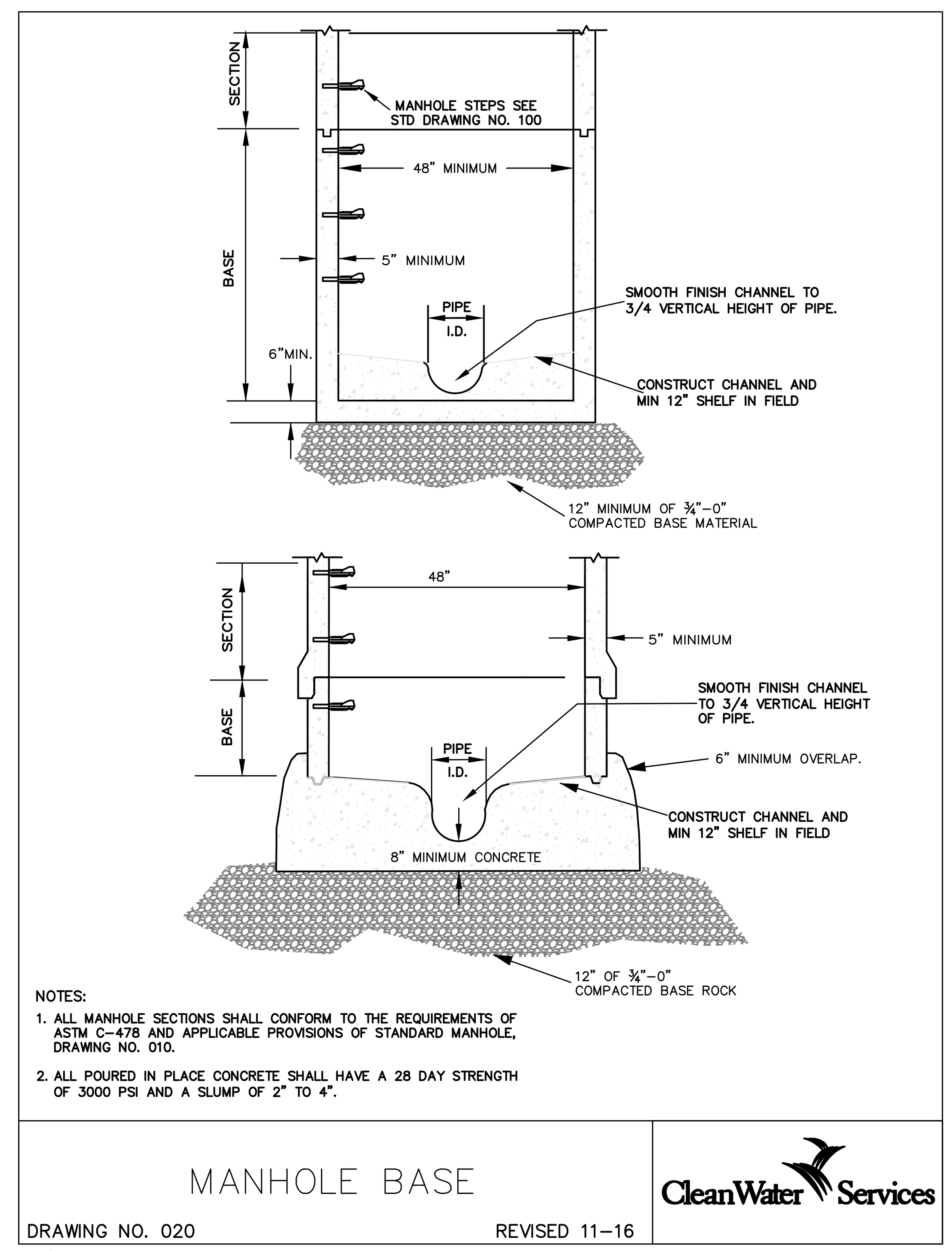
8 MITERED OUTFALL W/ TRASH RACK (3:1)
SCALE: NTS


JOINT DETAIL
WILL VARY BY
MANUFACTURER
DETAIL "A"
LOCATE FRAME
AND COVER OVER
LEDGE OF AT
LEAST 12" IN
WIDTH
8" MIN. BETWEEN
KNOCKOUTS
MAXIMUM 27" FROM
TOP OF FIRST STEP
TO TOP OF CASTING
STANDARD FRAME AND COVER OR
WATERTIGHT FRAME AND COVER.SEE
STD. DRAWING NO. 110, 120, OR 130
SET FRAME IN NON-SHRINK
GROUT
GRADE RINGS (2",4",OR 6")
MAXIMUM 12" SET IN
NON-SHRINK GROUT
STANDARD ECCENTRIC
36" CONE
MANHOLE SECTION
(VARIABLE 1'-4')
48" MINIMUM
MANHOLE STEPS SEE
STD DRAWING NO. 100
5" MINIMUM
SEE DETAIL "A"
60" MINIMUM
CONSTRUCT
CHANNEL AND MIN
12" SHELF IN FIELD
PIPE
I.D.
NON-SHRINKING GROUT
SMOOTH FINISH
CHANNEL TO
3/4 VERTICAL
HEIGHT OF
PIPE
12" MINIMUM OF ¾"-0" COMPACTED
BASE MATERIAL
NOTES:
1. ALL PRE-CAST MANHOLE SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-478.
2. SEE STD DRAWING 020 FOR POURED IN PLACE CONCRETE MANHOLE BASE.
3. ALL JOINTS AND RUBBER GASKETS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-443.
4. ALL PIPE CONNECTIONS TO MANHOLE SHALL BE WATERTIGHT.
5. PIPE CONNECTIONS OF 24" OR GREATER SHALL REQUIRE A MANHOLE AND CHANNEL DETAIL.
6. PIPE CONNECTIONS OF FOUR OR MORE MAINLINES SHALL REQUIRE A MANHOLE CONNECTION AND CHANNEL DETAIL.
7. PROVIDE A MINIMUM OF 8" OF INTACT (UNDISTURBED) MANHOLE WALL BETWEEN PIPE BREAKOUTS AS MEASURED ON THE INSIDE FACE OF THE MANHOLE.
8. BREAKOUT OF WALL FOR PIPE SHALL BE 2" MINIMUM AND 4" MAXIMUM CLEAR OF PIPE WALL.
9. THIS DETAIL LIMITED TO MAXIMUM INTERIOR DROP OF 12" FOR SANITARY CONNECTION AND 48" FOR STORM CONNECTION.
10. WATERTIGHT/TAMPER PROOF MANHOLE FRAME AND COVER SHALL BE USED IN ALL EASEMENT AND OFF STREET AREAS. SEE STD DRAWING 130.
11. ALL JOINTS AND RUBBER GASKETS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-443.
STANDARD MANHOLE
CleanWater Services
DRAWING NO. 010
REVISED 12-16

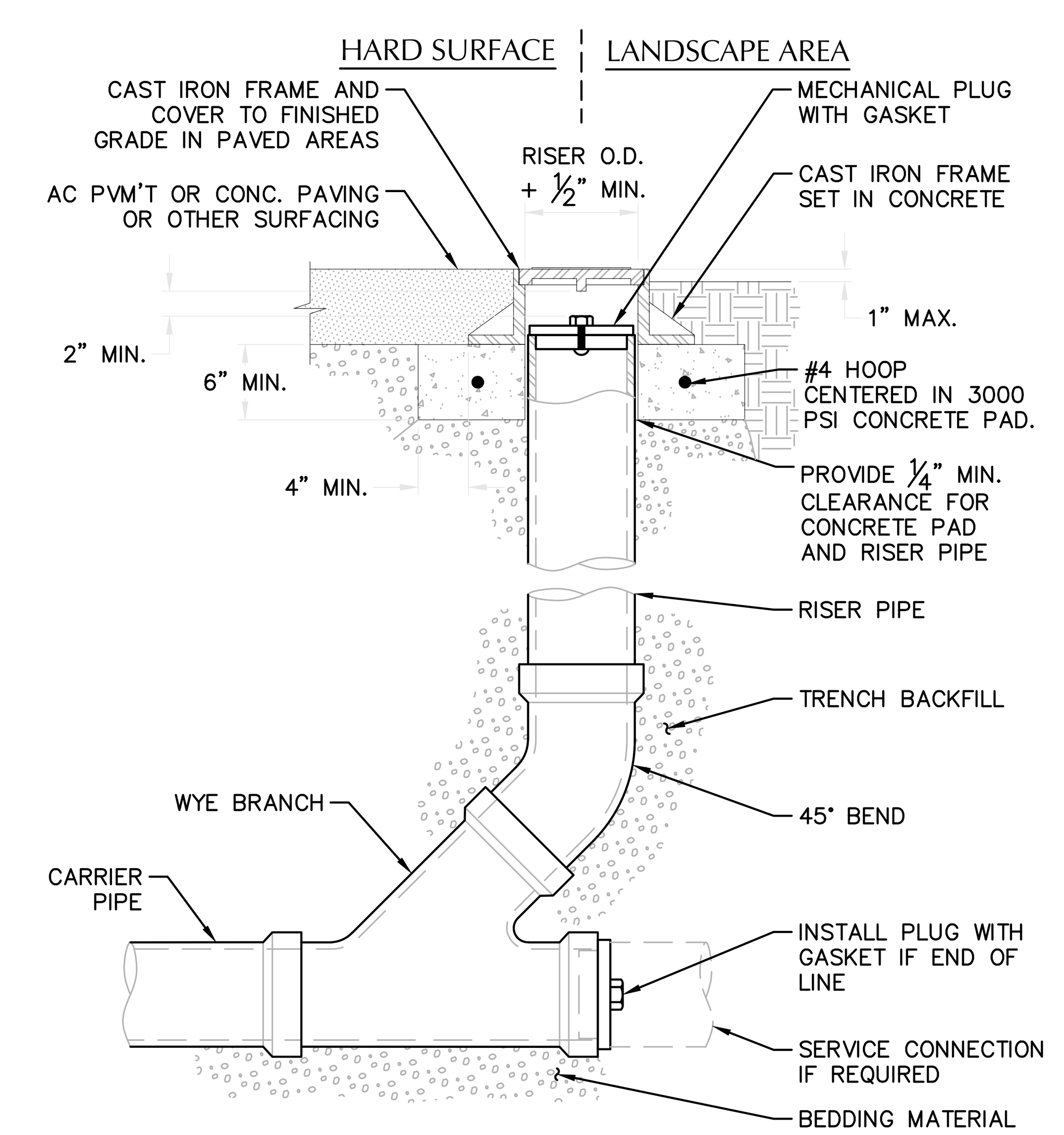
3 CWS STANDARD MANHOLE
SCALE: NTS


STANDARD MANHOLE FLAT TOP
W/REINFORCEMENT
OR
RUBBER GASKET FLAT TOP
W/REINFORCEMENT
58" DIA.
#6 BAR AROUND OUTSIDE OF OPENING
#6 DIAGONALS BOTH SIDES OF OPENING
#6 6" O.C. BOTH WAYS
10" TYP
25"
NON-SHRINKING GROUT
48"
CONSTRUCT
CHANNEL AND MIN
12" SHELF IN FIELD
1"/FT SLOPE
36" MINIMUM, 59" MAXIMUM
PIPE
I.D.
SMOOTH FINISH CHANNEL TO
3/4 VERTICAL HEIGHT OF
PIPE
6" MIN.
12" MINIMUM OF ¾"-0"
COMPACTED BASE ROCK
RUBBER GASKET
FLAT TOP
(OPTIONAL)
64" DIA.
25"
8" TYP
48"
RUBBER GASKET
NOTES:
1. ALL JOINTS AND RUBBER GASKETS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-433.
2. ALL MANHOLE SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-478 AND APPLICABLE PROVISIONS OF STANDARD MANHOLE, SEE STD DRAWING NO. 010.
3. STEPS REQUIRED ON FLAT TOP MANHOLES DEEPER THAN 48" FROM FINISHED GRADE TO I.E. OUT.
FLAT TOP MANHOLE
CleanWater Services
DRAWING NO. 050
REVISED 12-16

1 CWS FLAT TOP MANHOLE
SCALE: NTS


SECTION
MANHOLE STEPS SEE
STD DRAWING NO. 100
48" MINIMUM
5" MINIMUM
BASE
6"MIN.
PIPE
I.D.
SMOOTH FINISH CHANNEL TO
3/4 VERTICAL HEIGHT OF PIPE.
CONSTRUCT CHANNEL AND
MIN 12" SHELF IN FIELD
12" MINIMUM OF ¾"-0"
COMPACTED BASE MATERIAL
48"
5" MINIMUM
SMOOTH FINISH CHANNEL
TO 3/4 VERTICAL HEIGHT
OF PIPE.
6" MINIMUM OVERLAP.
CONSTRUCT CHANNEL AND
MIN 12" SHELF IN FIELD
8" MINIMUM CONCRETE
12" OF ¾"-0"
COMPACTED BASE ROCK
NOTES:
1. ALL MANHOLE SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-478 AND APPLICABLE PROVISIONS OF STANDARD MANHOLE, DRAWING NO. 010.
2. ALL POURED IN PLACE CONCRETE SHALL HAVE A 28 DAY STRENGTH OF 3000 PSI AND A SLUMP OF 2" TO 4".
MANHOLE BASE
CleanWater Services
DRAWING NO. 020
REVISED 11-16

4 CWS MANHOLE BASE
SCALE: NTS


HARD SURFACE
LANDSCAPE AREA
CAST IRON FRAME AND
COVER TO FINISHED
GRADE IN PAVED AREAS
MECHANICAL PLUG
WITH GASKET
RISER O.D.
+ ½" MIN.
CAST IRON FRAME
SET IN CONCRETE
AC PVM'T OR CONC. PAVING
OR OTHER SURFACING
1" MAX.
2" MIN.
6" MIN.
#4 HOOP
CENTERED IN 3000
PSI CONCRETE PAD.
4" MIN.
PROVIDE ¼" MIN.
CLEARANCE FOR
CONCRETE PAD
AND RISER PIPE
RISER PIPE
TRENCH BACKFILL
WYE BRANCH
45° BEND
CARRIER
PIPE
INSTALL PLUG WITH
GASKET IF END OF
LINE
SERVICE CONNECTION
IF REQUIRED
BEDDING MATERIAL

NOTES:
1. CAST IRON FRAME AND COVER SHALL MEET H-20 LOAD REQUIREMENT.
2. FOR CARRIER PIPE SIZE 6"Ø AND LESS, PROVIDE RISER PIPE SIZE TO MATCH CARRIER PIPE.
3. FOR CARRIER PIPE SIZE 8"Ø AND LARGER, RISER PIPE SHALL BE 6"Ø.
4. RISER PIPE MATERIAL TO MATCH CARRIER PIPE MATERIAL.

2 STANDARD CLEANOUT (CO)
SCALE: NTS

SERA

ARCHITECTURE
URBAN DESIGN + PLANNING
INTERIOR DESIGN

PORTLAND OREGON 97209
P: 503.445.7372
F: 503.445.7395
SERADESIGN.COM

Dreyfuss+ Blackford architecture

SACRAMENTO CALIFORNIA 95816
P: 916.453.1234
DREYFUSSBLACKFORD.COM

kpff

111 SW Fifth Ave., Suite 2400
Portland, OR 97204
O: 503.227.3251
F: 503.274.4681
www.kpff.com

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PORTLAND GENERAL ELECTRIC INTEGRATED OPERATIONS CENTER

PORTLAND GENERAL ELECTRIC
12150 SW TUALATIN-SHERWOOD ROAD
TUALATIN, OR 97062

EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

REVISIONS

CHECKED BY:	MR
ISSUE DATE:	3 JUNE 2019
PROJECT NO:	P18-003

DETAILS

MG C802

File: N:\C\P\2018\18000045-PGE-Integrated-Operations-Center\CAD\PLOT\8045-C802-DET.dwg TAB:C802
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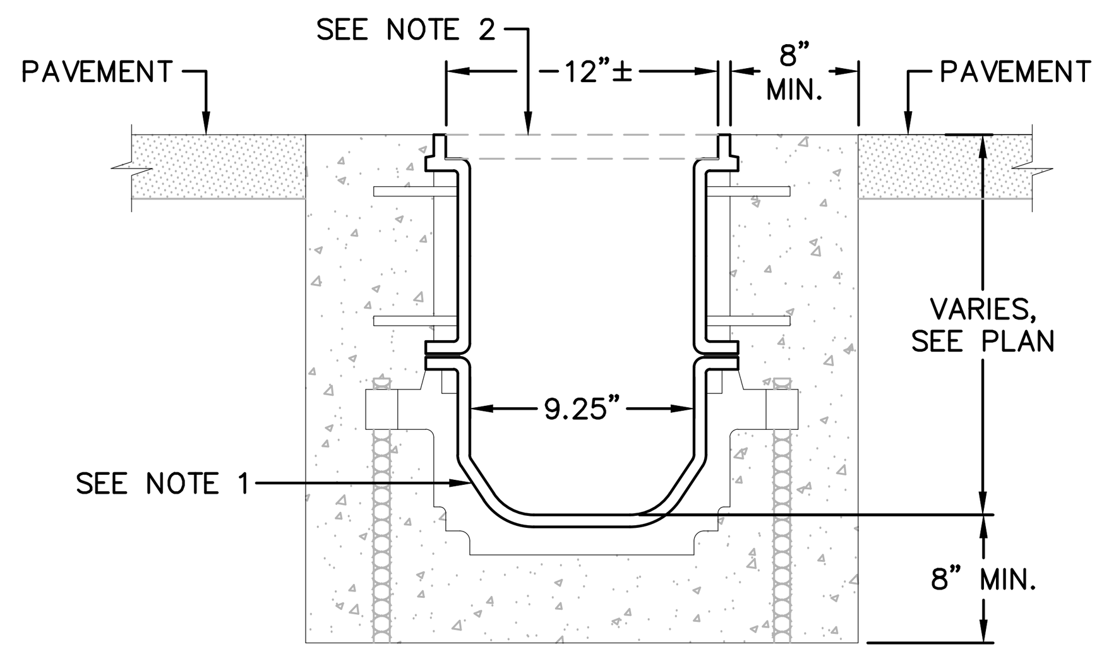
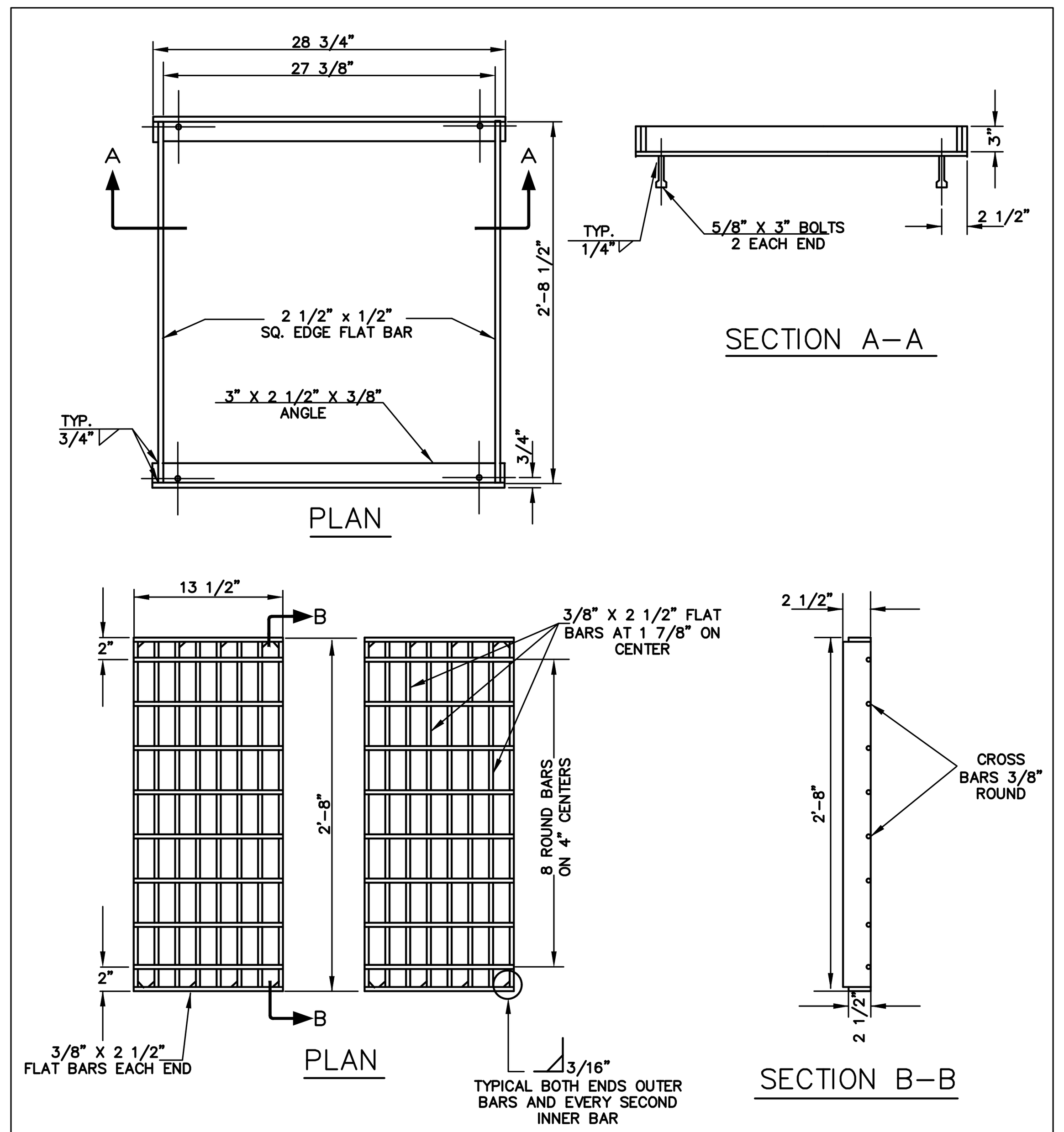
3/11/2019 9:59:29 AM
SERA Design and Architecture, Inc.



NOTES:
1. TRENCH DRAIN SHALL BE PRE-SLOPED 12" WIDE ZURN OR ACO TRENCH DRAIN OR APPROVED EQUAL.
2. TRENCH DRAINS GRATE SHALL BE LOCKABLE HEAVY DUTY TRENCH GRATE – CLASS F.
3. TRENCH SYSTEM SHALL BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.

7 TRENCH DRAIN - 12" WIDE

SCALE: NTS

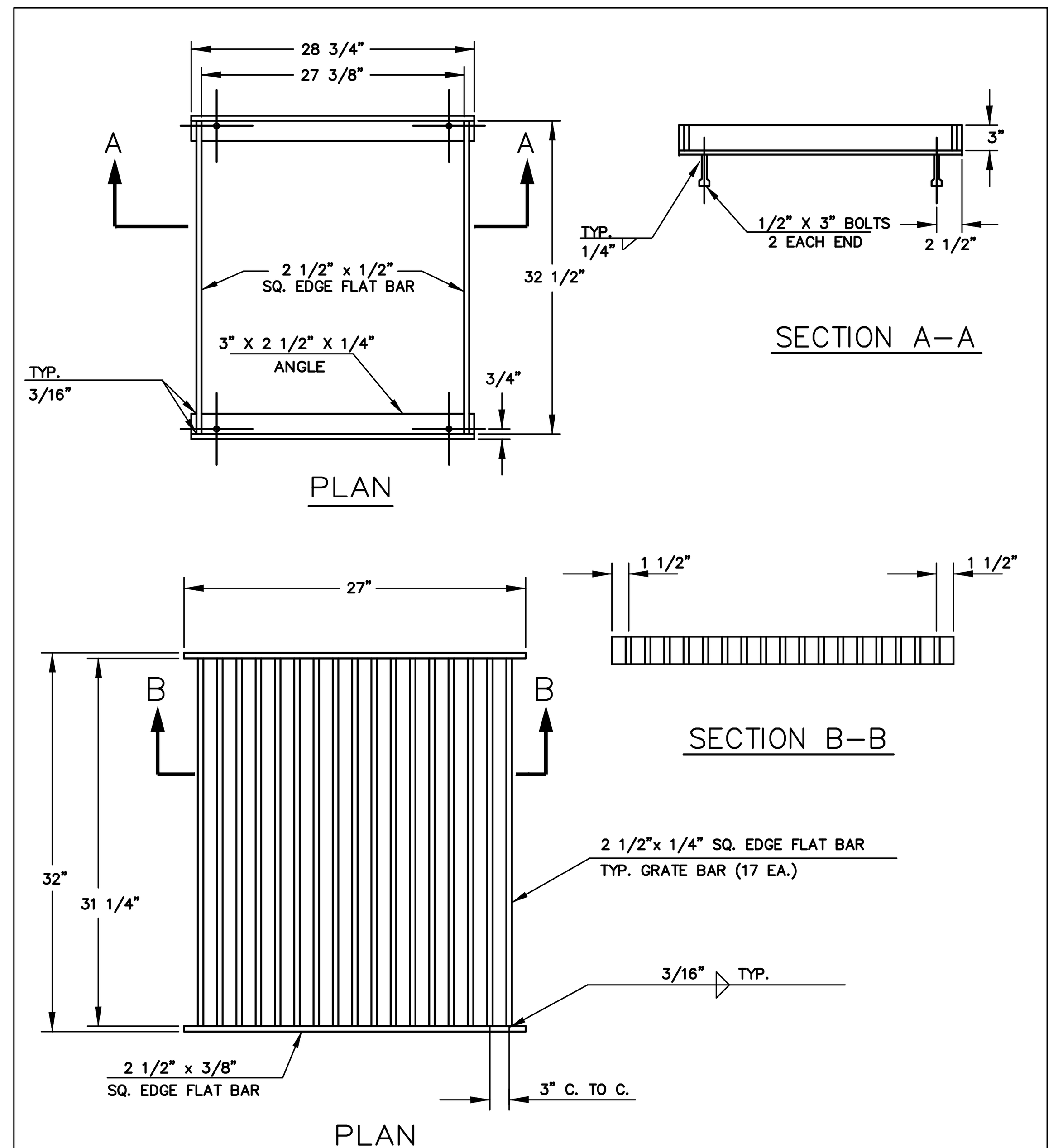


NOTE:
FRAME AND GRATE TO BE NEW STRUCTURAL ASTM A-36 FLAT BAR STEEL OR APPROVED EQUAL.

CATCH BASIN FRAME AND GRATE (CG–2)

DRAWING NO. 320 REVISED 12–06

CleanWater Services

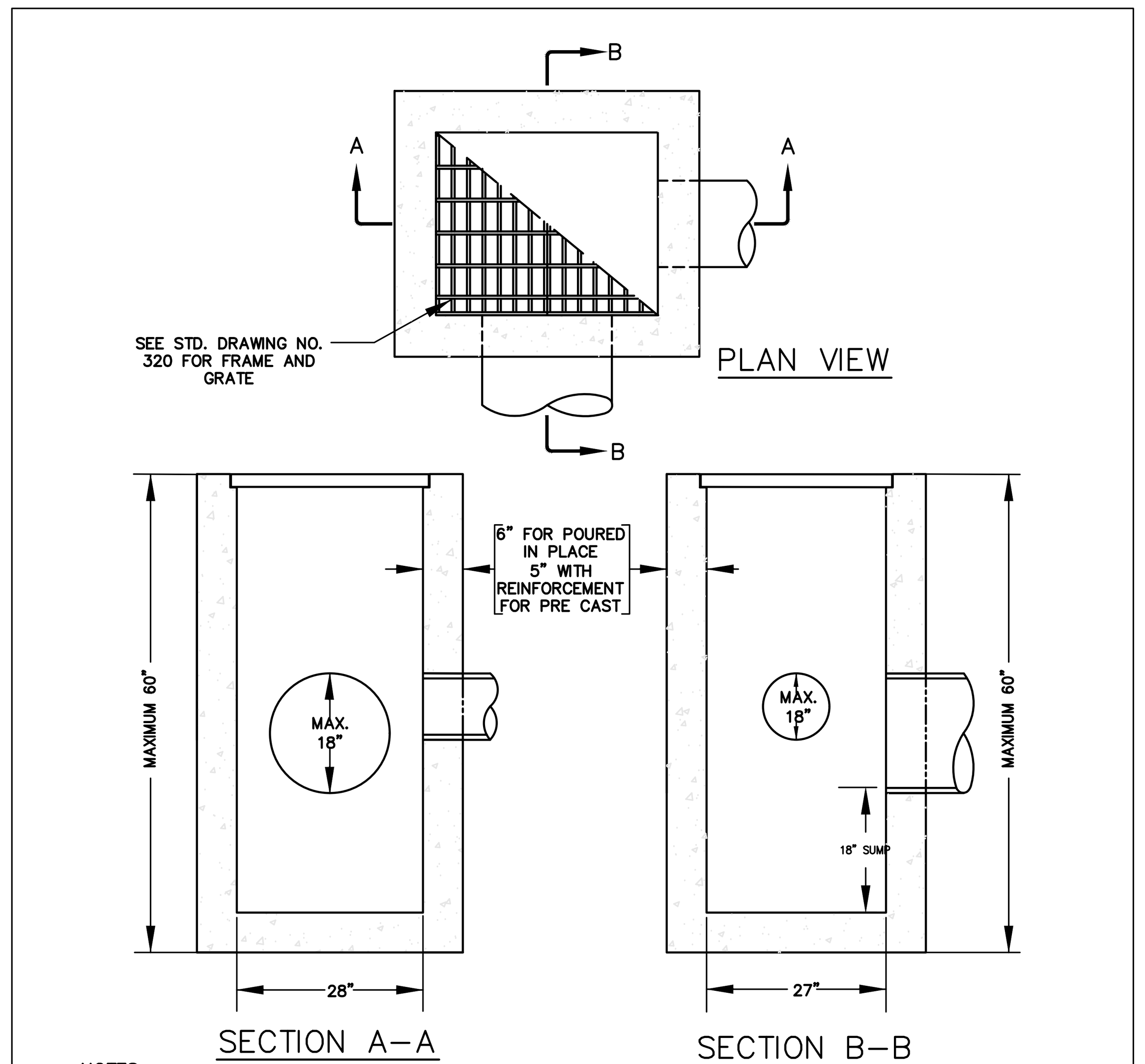


NOTES:
FRAME AND GRATE SHALL BE NEW STRUCTURAL ASTM A-36 FLAT BAR STEEL OR APPROVED EQUAL.

DITCH INLET FRAME AND GRATE

DRAWING NO. 400 REVISED 12–06

CleanWater Services

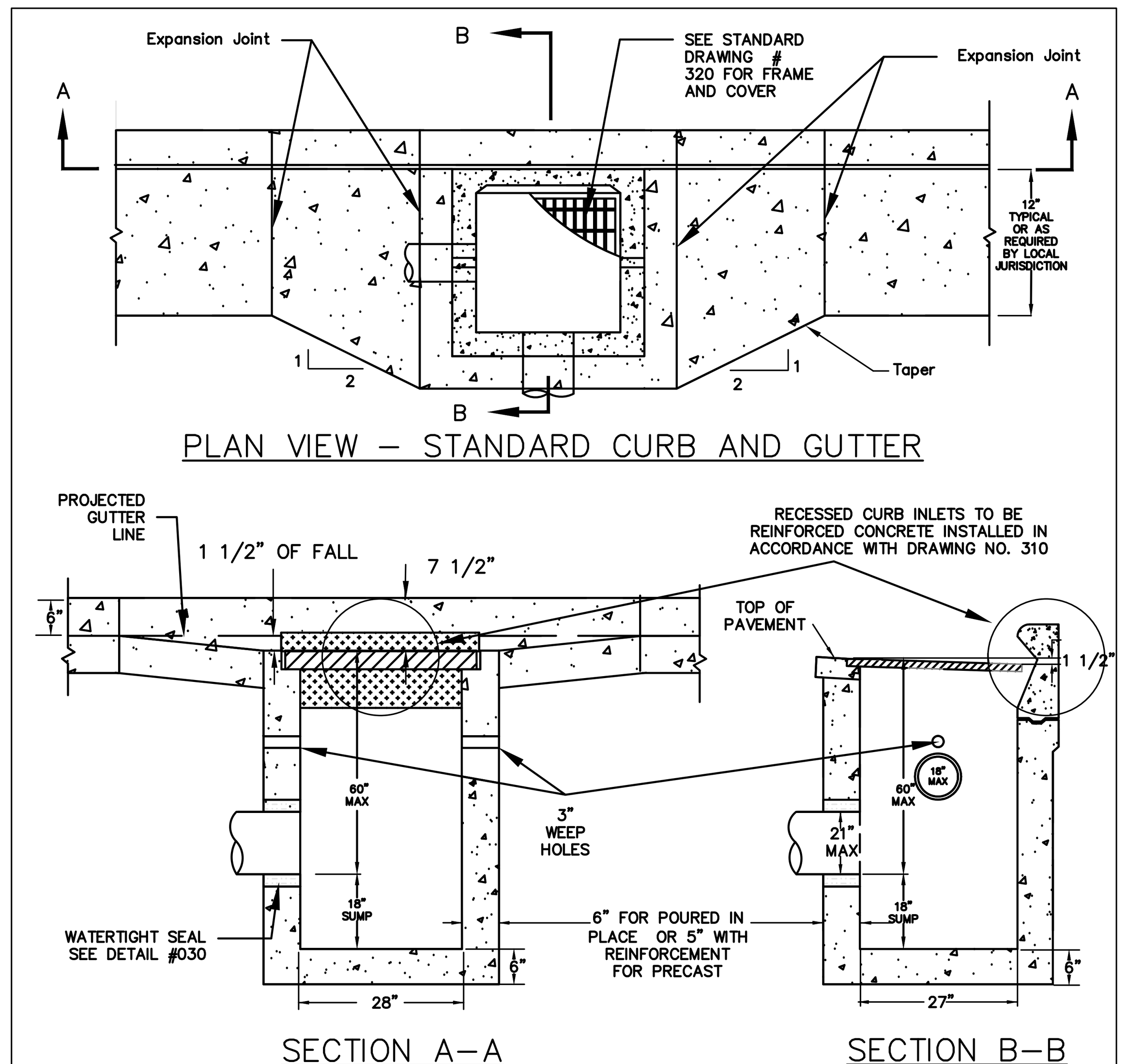


NOTES:
1. ALL PRE CAST SECTIONS SHALL CONFORM TO REQUIREMENTS OF ASTM C–478.
2. INSTALL STRUCTURE ON MIN. OF 8" OF ¾"–0" COMPACTED BASE MATERIAL.
3. PRE CAST REINFORCEMENT SHALL BE REBAR MEETING ASTM A615 GRADE OR WELDED WIRE MEETING ASTM A497.
4. ALL POURED INPLACE CONCRETE SHALL HAVE A 28 DAY STRENGTH OF 3000 P.S.I. AND A SLUMP OF 2" TO 4".
5. AREA DRAINS IN REAR OR SIDE YARDS SHALL NOT BE SUMPED AND SHALL BE PROPERLY CHANNELIZED. DITCH INLETS SHALL BE EQUIPPED WIHT AN 18" SUMP.
6. PRE–CAST STRUCTURE'S CONFORMING TO O.D.O.T. TYPE G–2 CATCH BASIN INLET ARE AN ACCEPTABLE ALTERNATE. (ALL GRATE MATERIALS AND DIMENSIONS SHALL MEET C.W.S. STANDARDS AS SHOWN ON DETAIL #320)

AREA DRAIN TYPE II

DRAWING NO. 380 REVISED 01–13

CleanWater Services

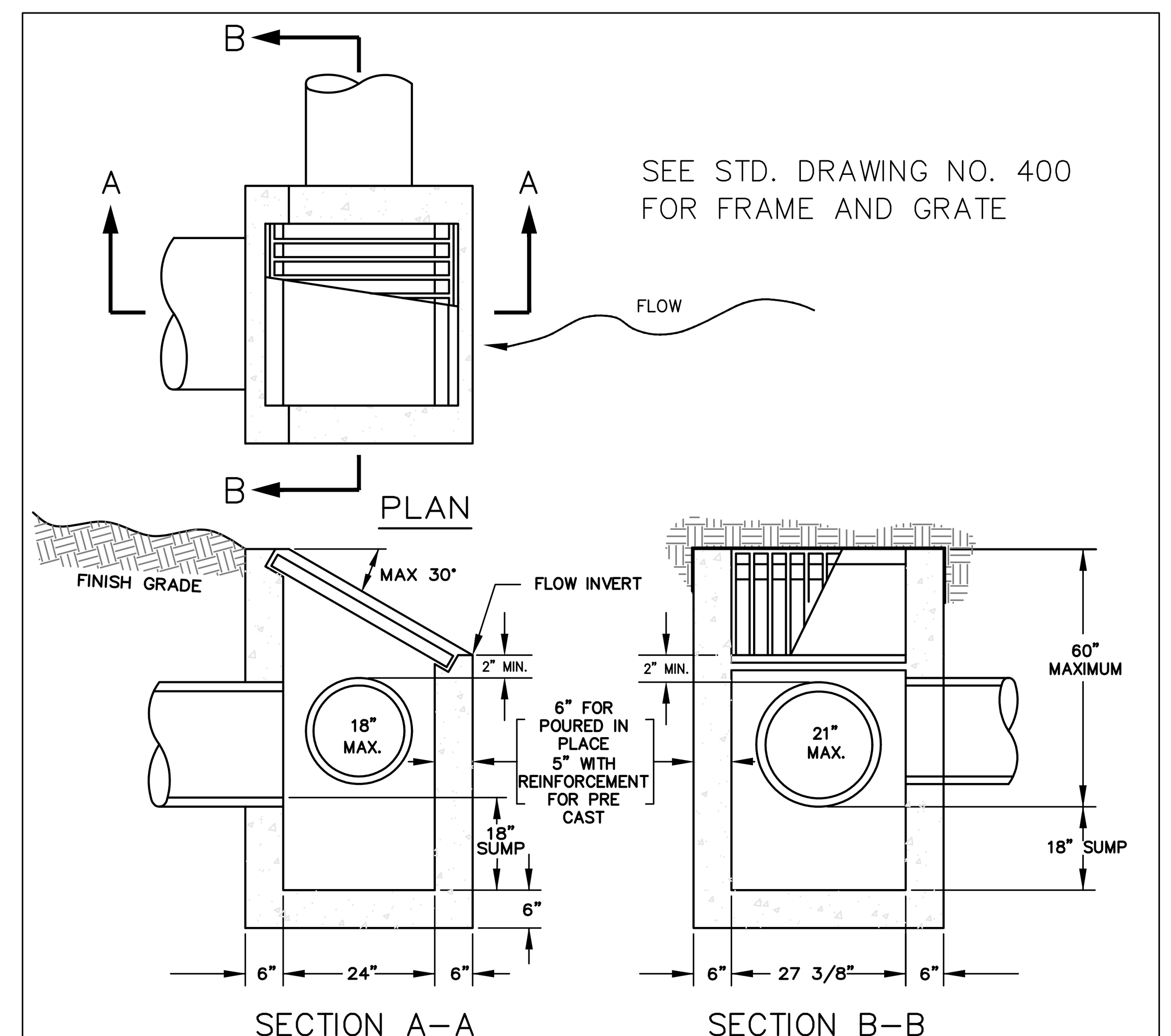


NOTES:
1. CATCH BASIN SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C–478.
2. INSTALL STRUCTURE ON MINIMUM OF 8" OF ¾"–0" COMPACTED BASE MATERIAL.
3. REINFORCEMENT FOR PRE CAST CATCH BASIN SHALL BE REBAR MEETING ASTM A–615 GRADE 60 OR WELDED WIRE MEETING ASTM A–497.
4. ALL POURED IN–PLACE CONCRETE SHALL HAVE A 28 DAY STRENGTH OF 3000 P.S.I. AND A SLUMP OF 2" TO 4".
5. CHANNEL REQUIRED IN FLOW THROUGH APPLICATIONS, AS APPROVED. ALL OTHER APPLICATIONS REQUIRE AN 18" SUMP BELOW LOWEST PIPE INVERT.
6. FULL CURB EXPOSURE REQUIRED CANNOT BE LOCATED IN SIDEWALK RAMPS OR RAMP WINGS.

GUTTER & CURB INLET CATCH BASIN (CG–2)

DRAWING NO. 300 REVISED 09–16

CleanWater Services



NOTES:
1. ALL PRE CAST SECTIONS SHALL CONFORM TO REQUIREMENTS OF ASTM C–478.
2. INSTALL STRUCTURE ON MINIMUM OF 8" OF 3/4" – 0" COMPACTED BASE MATERIAL.
3. PRE CAST REINFORCEMENT SHALL BE REBAR MEETING ASTM A615 GRADE 60 OR WELDED WIRE MEETING ASTM A497
4. ALL POURED IN PLACE CONCRETE SHALL HAVE A 28 DAY STRENGTH OF 3000 PSI AND SLUMP OF 2" TO 4".
5. PRE–CAST STRUCTURE'S CONFORMING TO O.D.O.T. TYPE G–2 CATCH BASIN DESIGN/WITH DITCH INLET TOP ARE AN ACCEPTABLE ALTERNATE. ALL GRATE MATERIALS SHALL MEET C.W.S. STANDARDS AS SHOWN ON DETAIL #400

DITCH INLET

DRAWING NO. 390 REVISED 05–07

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PORTLAND GENERAL ELECTRIC INTEGRATED OPERATIONS CENTER

PORTLAND GENERAL ELECTRIC
12150 SW TUALATIN-SHERWOOD ROAD
TUALATIN, OR 97062

EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

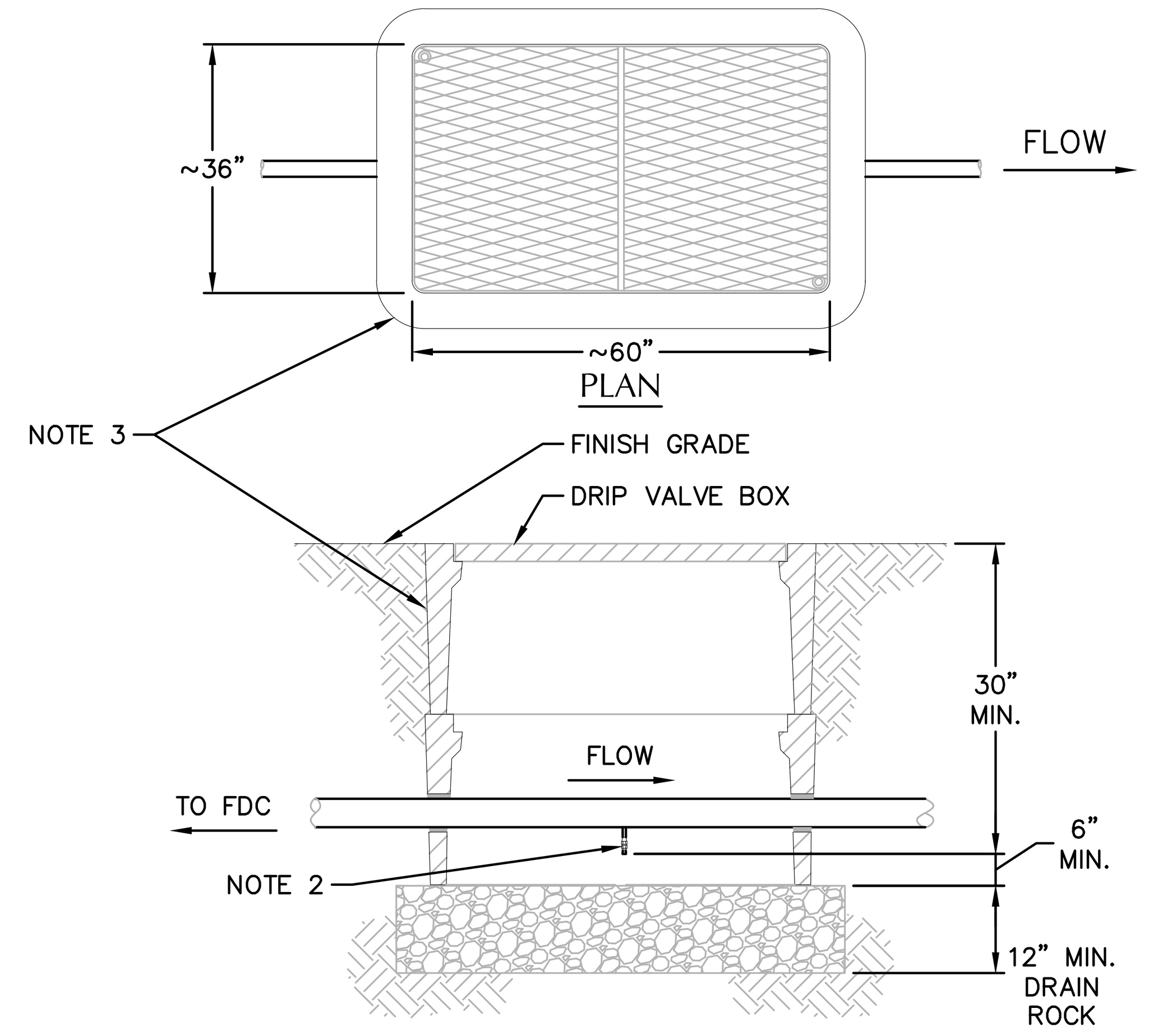
REVISIONS

CHECKED BY: MR
ISSUE DATE: 3 JUNE 2019
PROJECT NO: P18-003

DETAILS

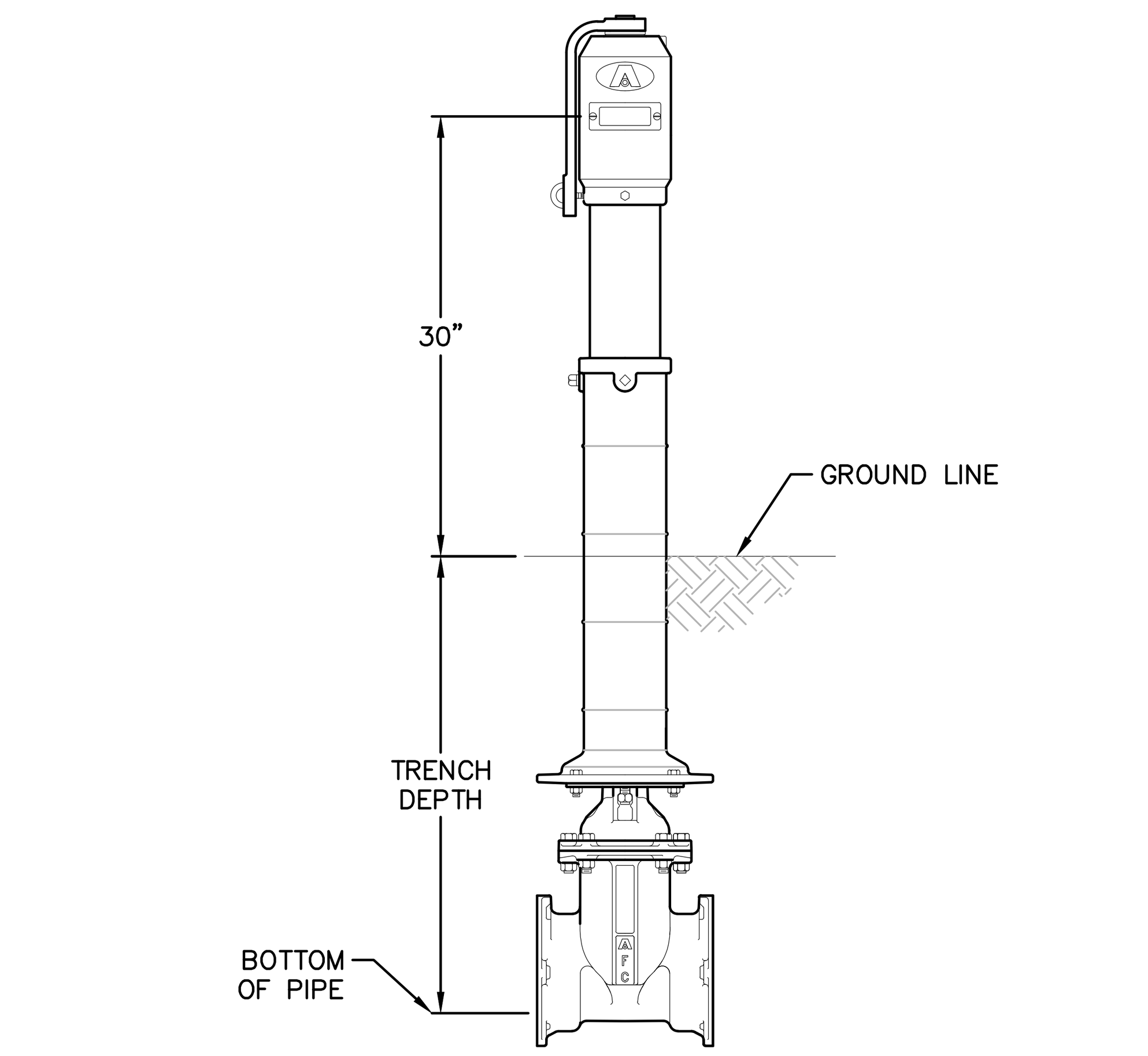
MG C803

File: N:\c\p\2018\1800045-PGE-Integrated-Operations-Center\CAD\PLOT\8045-C802-DETL.dwg TAB:C803
Plotted: 5/31/19 at 1:45pm By: jSweeney
3/11/2019 9:59:29 AM
SERA Design and Architecture, Inc.



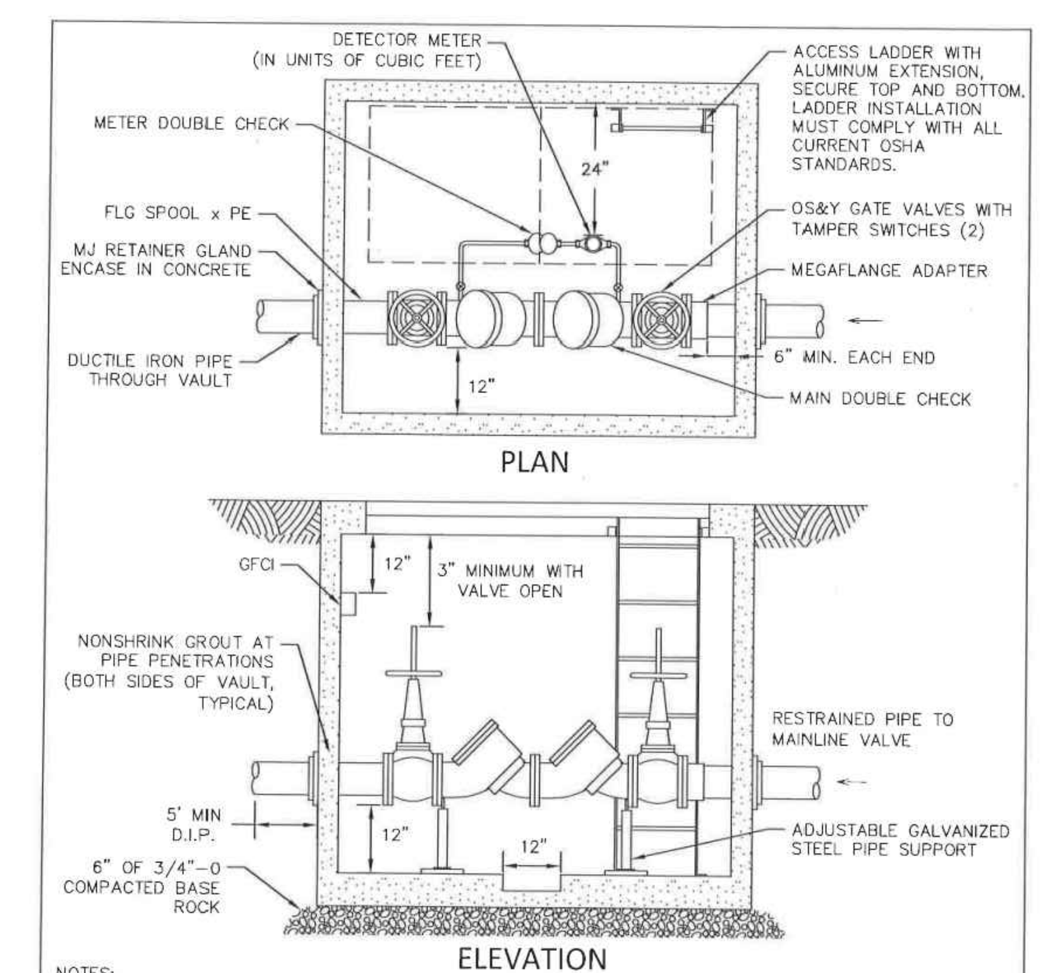
NOTES:
1. USE FLANGE OR THREADED FITTINGS.
2. AUTOMATIC BALL DRIP VALVE, TO BE 30" MIN. BELOW FINISH GRADE. LOCATE DRIP VALVE AND BOX AT LOW POINT OF FDC LINE.
3. VAULT SHALL BE HDPE WITH POLYMER CONCRETE COVER BY OLDCASTLE, MODEL 3660 OR APPROVED EQUAL

5 BALL DRIP VALVE AND BOX
SCALE: NTS



NOTE:
INDICATOR POST BY AMERICAN FLOW CONTROL MODEL IP-71 (UNDERGROUND) OR APPROVED EQUAL. SEE MANUFACTURER'S SPECIFICATIONS FOR DETAILS.

3 POST INDICATOR VALVE ASSEMBLY
SCALE: NTS



NOTES:
1. USE DUCTILE IRON PIPE THROUGH AND 5' BEYOND VAULT ON PRIVATE SIDE DUE TO VAULT SETTLEMENT. NO PIPE BELL ENDS INSIDE VAULT.
2. INSTALL PLUGS IN TEST COCKS.
3. ASSEMBLY MAY ALSO BE MOUNTED ABOVE GROUND IN AN INSULATED PROTECTIVE ENCLOSURE AT THE RIGHT-OF-WAY.
4. CHECK VAULT FLOTATION AND CORRECT IF NECESSARY.
5. BACKFLOW ASSEMBLY AND INSTALLATION TO COMPLY WITH AWWA C510 AND OAR 333-61-070.
6. PROVIDE SUMP PUMP WITH DIAPHRAGM OR VERTICAL FLOAT SWITCH AND 2" PVC CHECK VALVE AND PIPE DISCHARGE TO DAYLIGHT. SUPPLY POWER THRU GFCI INTERNAL WALL MOUNT 12" BELOW CEILING.
7. PROVIDE INSPECTOR WITH CERTIFIED TEST REPORT UPON COMPLETION.

PIPE SIZE	OLDCASTLE	COVER OFFSET
4"	687-WA	2-332P
6"	687-WA	2-332P
8"	5106-WA	3-332P
10"	5106-WA	3-332P

CITY OF TUALATIN, OR — DOUBLE CHECK DETECTOR FIRE PROTECTION WITHOUT FDC

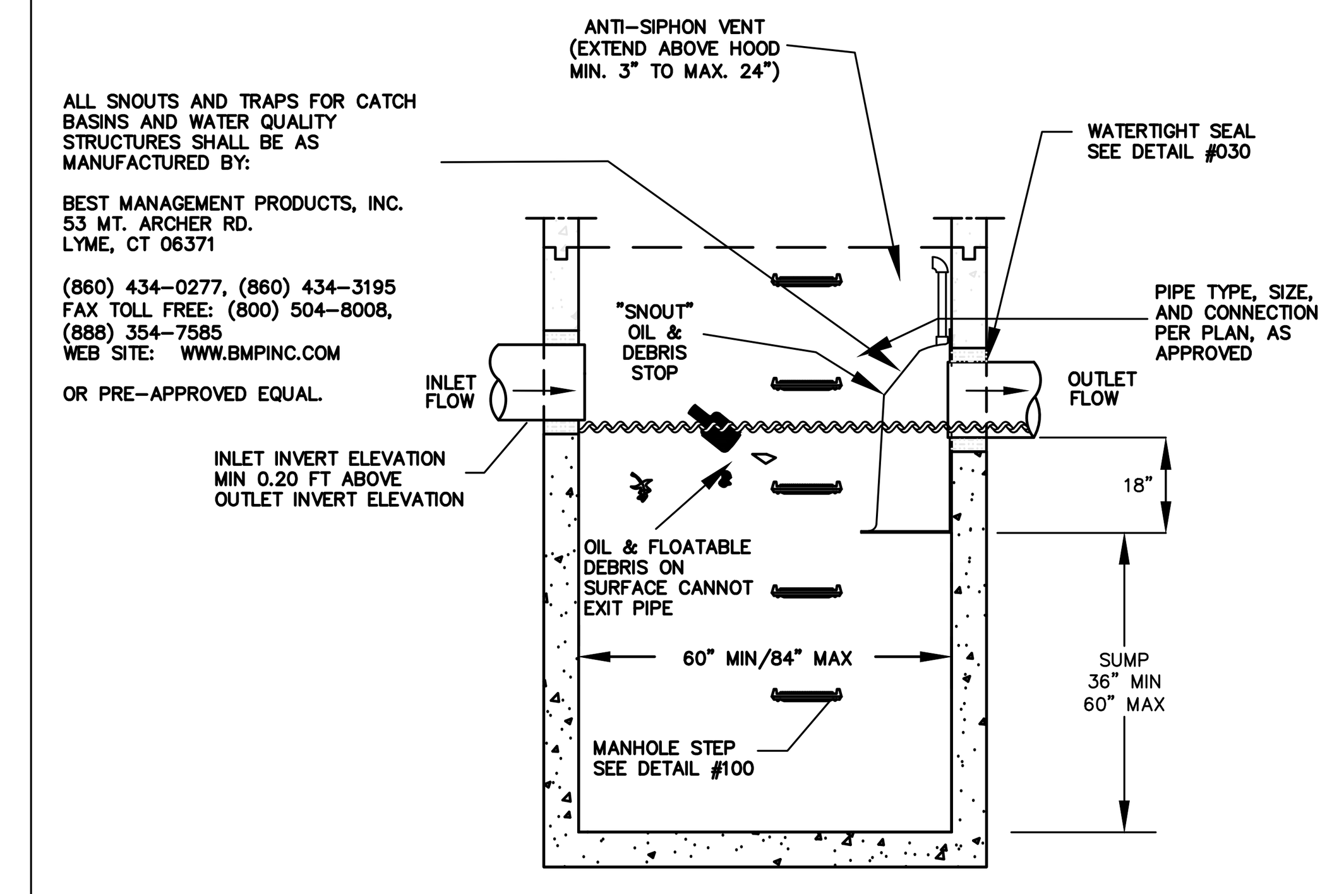
REVISED: 12/2018 VALID: 12/2018	SCALE: NOT TO SCALE	DRAWN: C. FERGESON APPROVED: K. MCMILLAN	DWG NO. 614

1 DOUBLE CHECK DETECTOR
SCALE: NTS

ALL SNOUTS AND TRAPS FOR CATCH BASINS AND WATER QUALITY STRUCTURES SHALL BE AS MANUFACTURED BY:

BEST MANAGEMENT PRODUCTS, INC.
53 MT. ARCHER RD.
LYME, CT 06371
(860) 434-0277, (860) 434-3195
FAX TOLL FREE: (800) 504-8008,
(888) 354-7585
WEB SITE: WWW.BMPINC.COM

OR PRE-APPROVED EQUAL.



NOTES:
1. ALL MANHOLE SECTIONS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-478 AND APPLICABLE PROVISIONS OF STD. MANHOLE DRAWING NO. 010.
2. INLET AND OUTLET PIPE NOT TO EXCEED 18"DIA.
3. PROVIDE SPECIAL DETAIL FOR SNOUT 18" DIA.
4. THE SIZE AND POSITION OF THE HOOD SHALL BE DETERMINED BY THE OUTLET PIPE SIZE AS PER MANUFACTURER'S RECOMMENDATIONS.
5. ANCHORING HARDWARE FOR THE HOOD SHALL BE EMBEDDED INTO CONCRETE; ANCHORING INTO GROUT IS NOT AUTHORIZED.
6. THE SURFACE OF THE STRUCTURE WHERE THE HOOD IS MOUNTED SHALL BE FINISHED SMOOTH AND FREE OF LOOSE MATERIAL.
7. INSTALL PER MANUFACTURER'S INSTRUCTION AND USING MANUFACTURER'S INSTALLATION KIT.

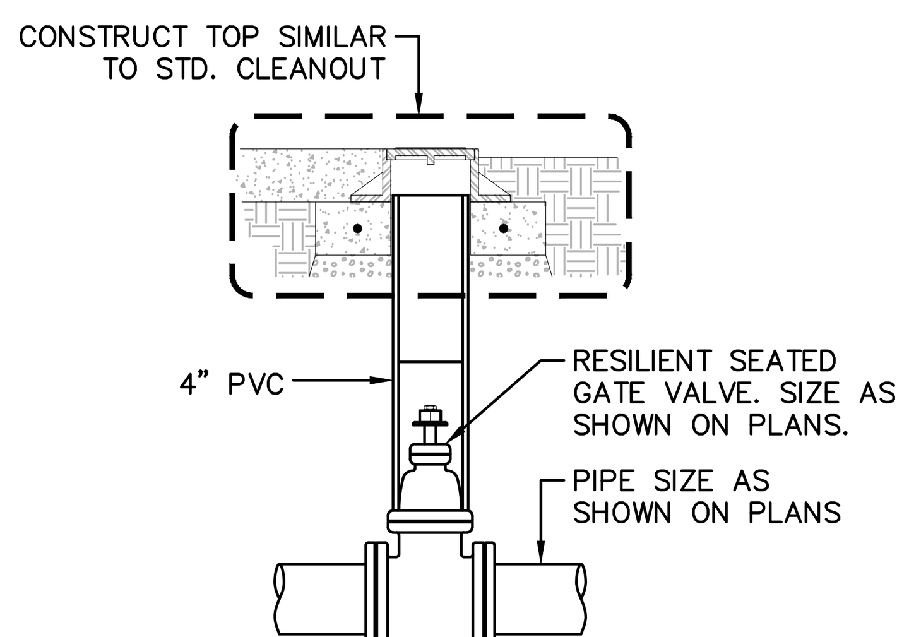
SUMP VOLUME AVAILABLE PER DEPTH OF SUMP

	36" MINIMUM	60" MAXIMUM
60" M.H.=	58.9 CF	98.1 CF
72" M.H.=	84.8 CF	141.3 CF
84" M.H.=	115.4 CF	192.4 CF

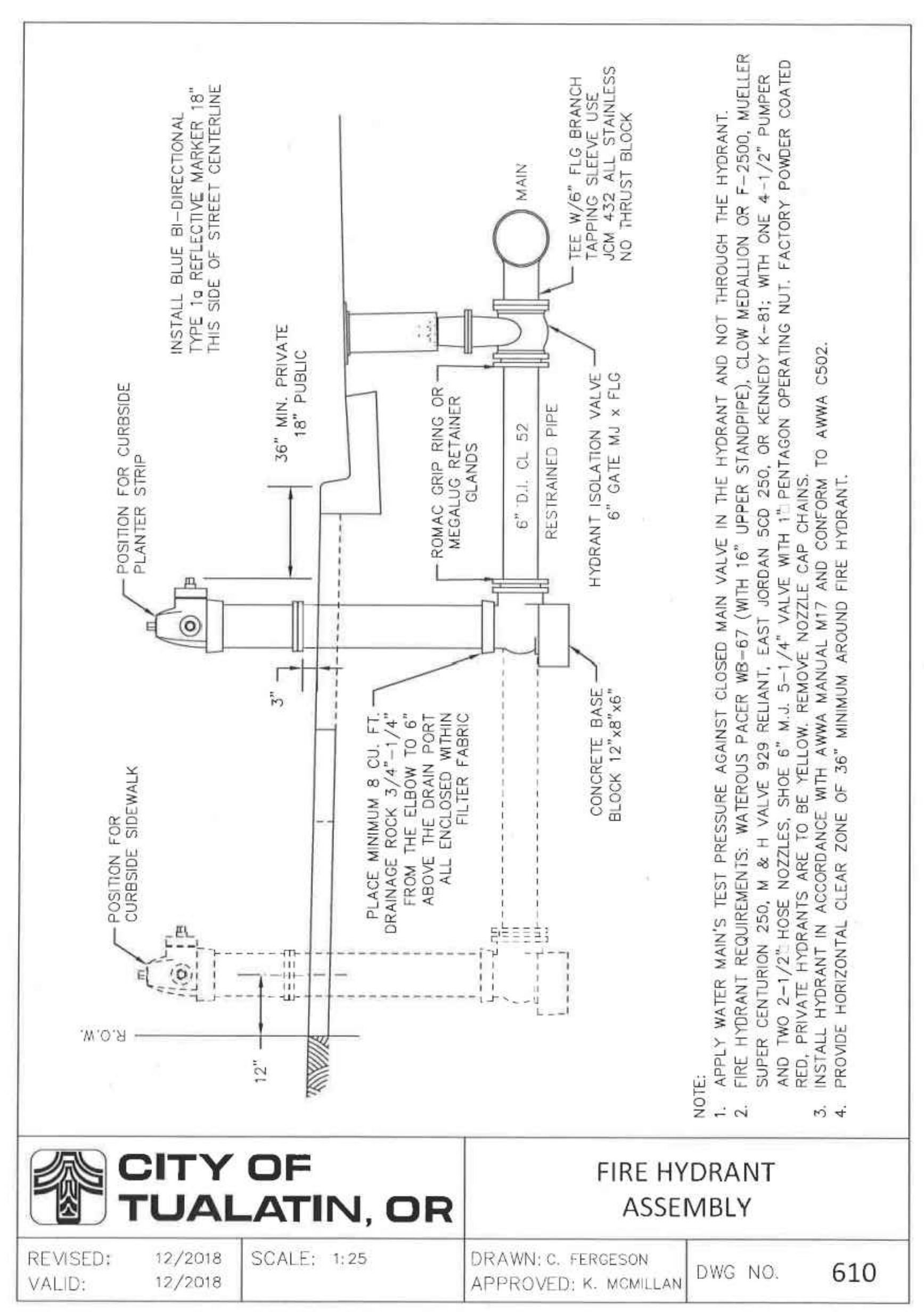
PROVIDE SPECIAL DETAIL FOR VOLUME REQUIREMENTS EXCEEDING 192.4 CF

SUMP VOLUME REQUIREMENTS
20 CF/1.0 CFS OF INFLOW
58.9 CF MINIMUM REQUIRED

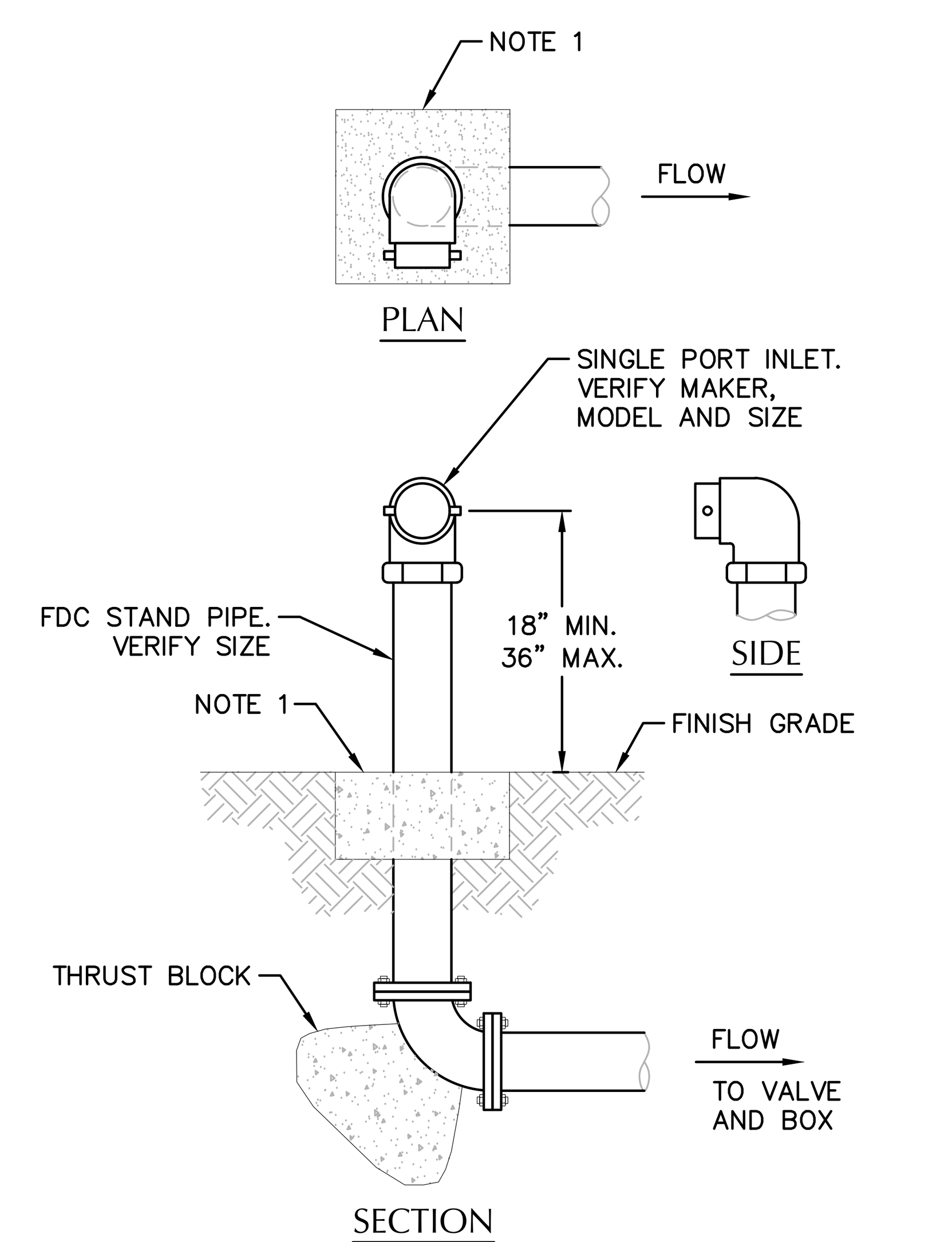
WATER QUALITY MANHOLE (SNOUT) A
DRAWING NO. 250 — REVISED 12-16
CleanWater Services



6 GATE VALVE
SCALE: NTS

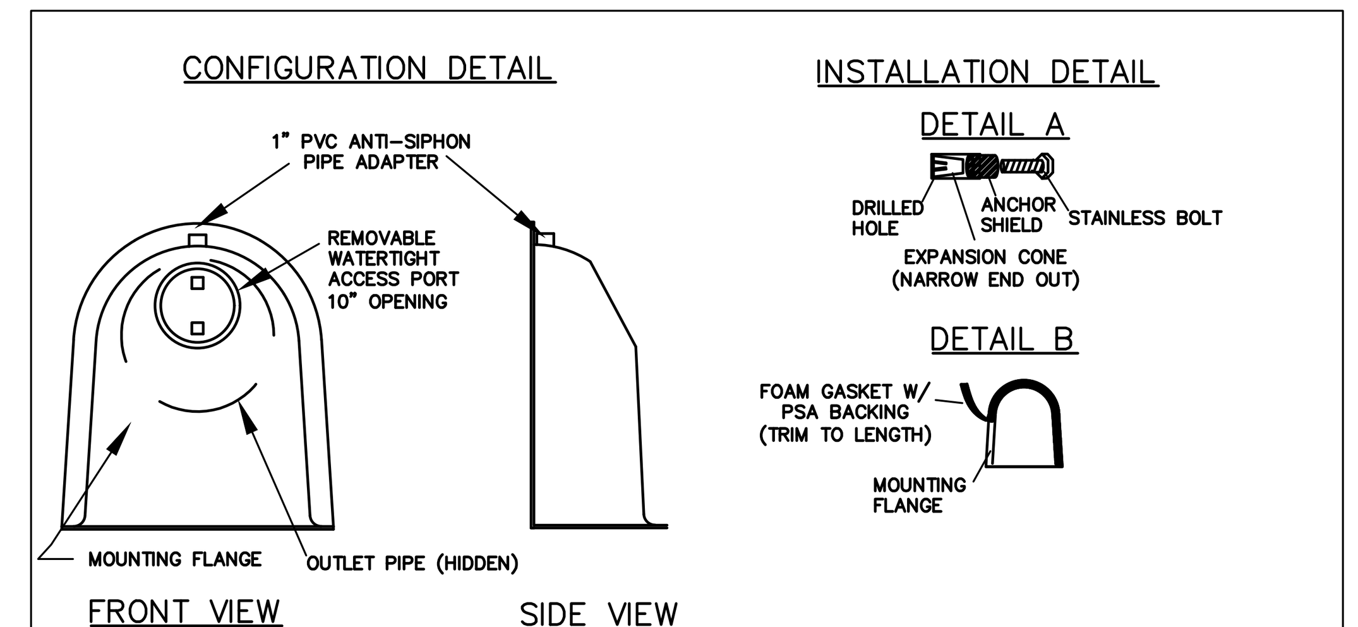


4 FIRE HYDRANT ASSEMBLY
SCALE: NTS



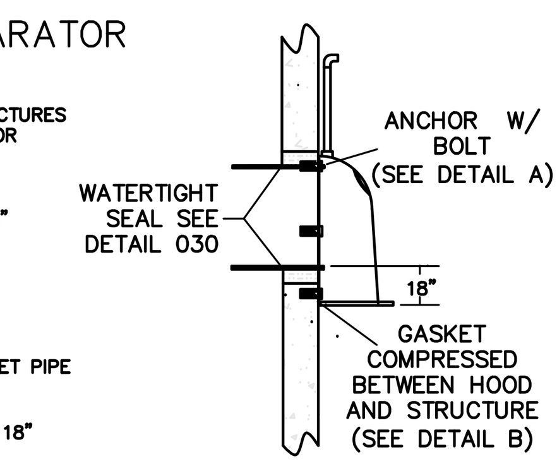
NOTES:
1. CONCRETE ANCHOR PAD TO BE 12"x12"x6" THICK, UNLESS NOTED OTHERWISE. ELIMINATE IF INSTALLED IN CONCRETE PAVED AREA.
2. USE FLANGE OR THREADED FITTINGS.
3. CONFIRM FDC LINE SIZE AND NUMBER OF PORTS WITH DESIGN BUILD SPRINKLER CONTRACTOR PRIOR TO ORDERING MATERIAL.

2 FIRE DEPARTMENT CONNECTION (FDC) SINGLE PORT
SCALE: NTS



SNOUT OIL-WATER-DEBRIS SEPARATOR

NOTES:
1. ALL HOODS AND TRAPS FOR CATCH BASINS AND WATER QUALITY STRUCTURES SHALL BE AS MANUFACTURED BY BEST MANAGEMENT PRODUCTS, INC. OR PRE-APPROVED EQUAL.
2. ALL HOODS SHALL BE CONSTRUCTED OF A GLASS REINFORCED RESIN COMPOSITE WITH ISO GEL COAT EXTERIOR FINISH WITH A MINIMUM 0.125" LAMINATE THICKNESS.
3. ALL HOODS SHALL BE EQUIPPED WITH A WATERTIGHT ACCESS PORT, A MOUNTING FLANGE, AND AN ANTI-SIPHON VENT AS DRAWN. (SEE CONFIGURATION DETAIL)
4. THE SIZE AND POSITION OF THE HOOD SHALL BE DETERMINED BY OUTLET PIPE SIZE AS PER MANUFACTURER'S RECOMMENDATION.
5. THE BOTTOM OF THE HOOD SHALL EXTEND DOWNWARD A DISTANCE OF 18" FROM I.E. OUT.
6. THE ANTI-SIPHON VENT SHALL EXTEND ABOVE HOOD BY MINIMUM OF 3" AND A MAXIMUM OF 24" ACCORDING TO STRUCTURE CONFIGURATION.
7. THE SURFACE OF THE STRUCTURE WHERE THE HOOD IS MOUNTED SHALL BE FINISHED SMOOTH AND FREE OF LOOSE MATERIAL.
8. THE HOOD SHALL BE SECURELY ATTACHED TO STRUCTURE WALL WITH STAINLESS STEEL BOLTS AND OIL-RESISTANT GASKET AS SUPPLIED BY MANUFACTURER. (SEE INSTALLATION DETAIL)
9. ANCHOR BOLTS SHALL BE INSTALLED INTO THE CONCRETE OF THE STRUCTURE'S WALL. (NOT WITHIN GROUT)
10. INSTALLATION INSTRUCTIONS SHALL BE FURNISHED WITH MANUFACTURER SUPPLIED INSTALLATION KIT.
KIT SHALL INCLUDE:
A. INSTALLATION INSTRUCTIONS
B. PVC ANTI-SIPHON VENT PIPE AND ADAPTER
C. OIL-RESISTANT CRUSHED CELL FOAM GASKET WITH PSA BACKING
D. 3/8" STAINLESS STEEL BOLTS
E. ANCHOR SHIELDS



BEST MANAGEMENT PRODUCTS, INC.
53 MT. ARCHER RD.
LYME, CT 06371
TOLL FREE: (800) 504-8008 (888) 354-7585
WEB SITE: WWW.BMPINC.COM

INSTALLATION NOTE:
POSITION HOOD SUCH THAT BOTTOM FLANGE IS 18" BELOW THE PIPE INVERT.

WATER QUALITY MANHOLE (SNOUT) B
DRAWING NO. 260 — REVISED 12-16
CleanWater Services

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URBAN DESIGN + PLANNING
INTERIOR DESIGN
PORTLAND OREGON 97209
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F: 503.445.7395
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SACRAMENTO CALIFORNIA 95816
P: 916.453.1234
DREYFUSSBLACKFORD.COM

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111 SW Fifth Ave., Suite 2400
Portland, OR 97204
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F: 503.274.4681
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PORTLAND GENERAL ELECTRIC INTEGRATED OPERATIONS CENTER
PORTLAND GENERAL ELECTRIC
12150 SW TUALATIN-SHERWOOD ROAD
TUALATIN, OR 97062
EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

REVISIONS

CHECKED BY: MR
ISSUE DATE: 3 JUNE 2019
PROJECT NO: P18-003

DETAILS
MG C804

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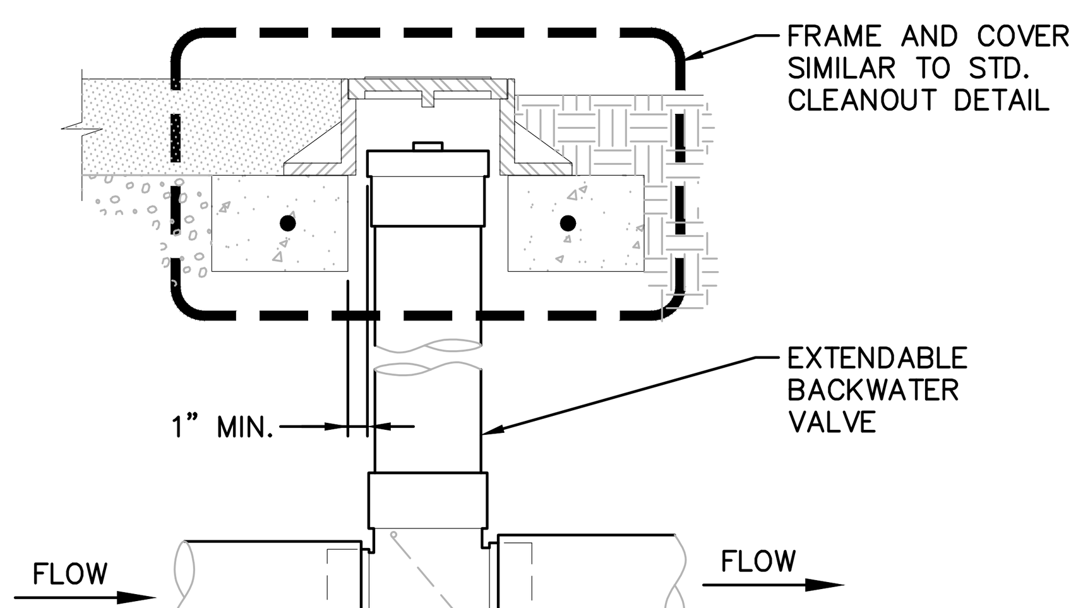
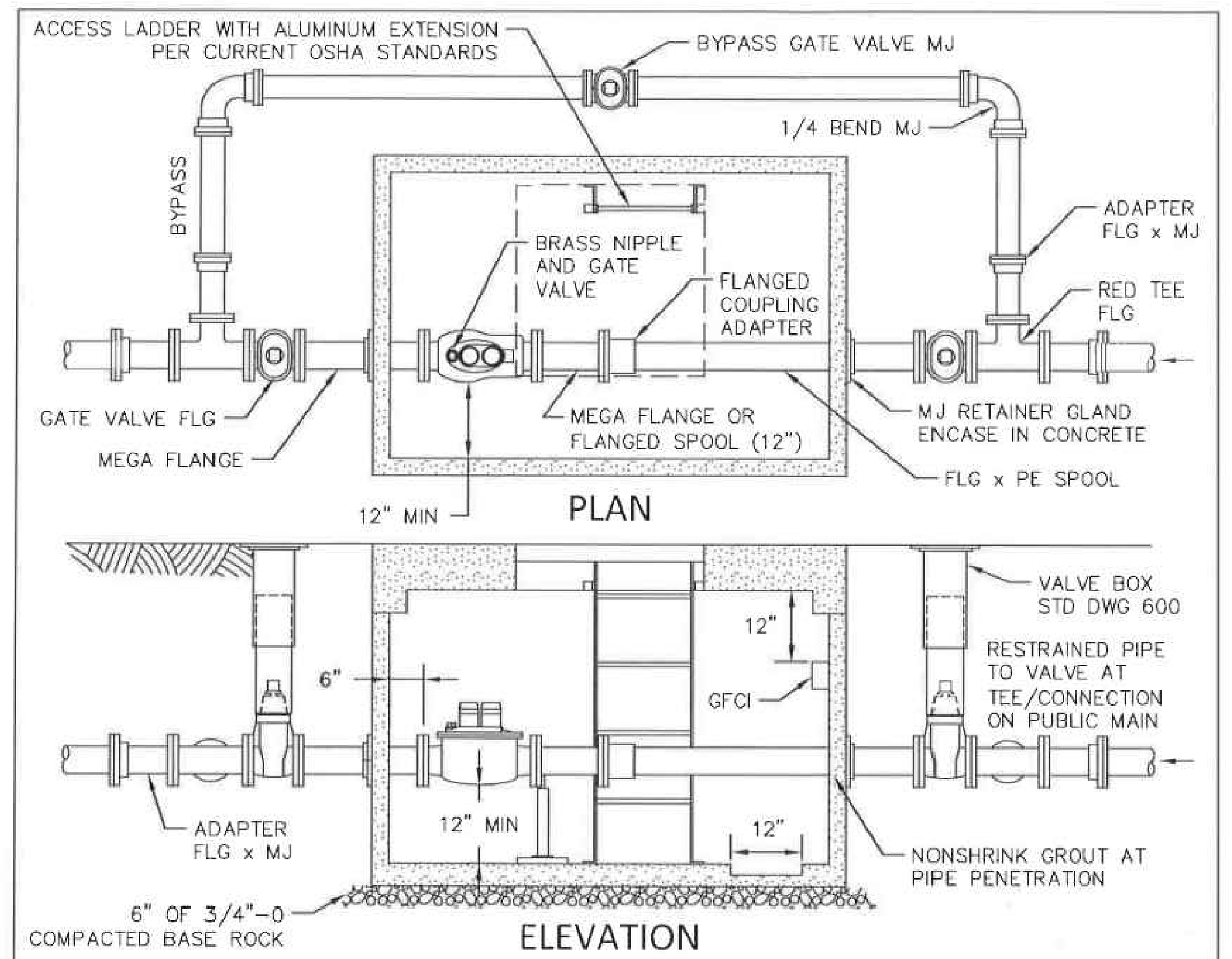
SERA Design and Architecture, Inc.
3/11/2019 9:59:29 AM



NOTES:
1. EXTENDABLE BACKWATER VALVE TO BE MANUFACTURED BY CLEAN CHECK OR APPROVED EQUAL AND SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

5 EXTENDABLE BACKWATER VALVE
SCALE: NTS



METER SIZE	OLD CASTLE	COVER	BY-PASS DIAMETER	MAX. CONTINUOUS FLOW RATE GPM	METER LENGTH
3"	577-LA	2-332P	3"	320	17"
4"	687-WA	2-332P	3"	500	20"
6"	687-WA	2-332P	4"	1000	24"
8"	5106-WA	3-332P	6"	1600	55-3/8"

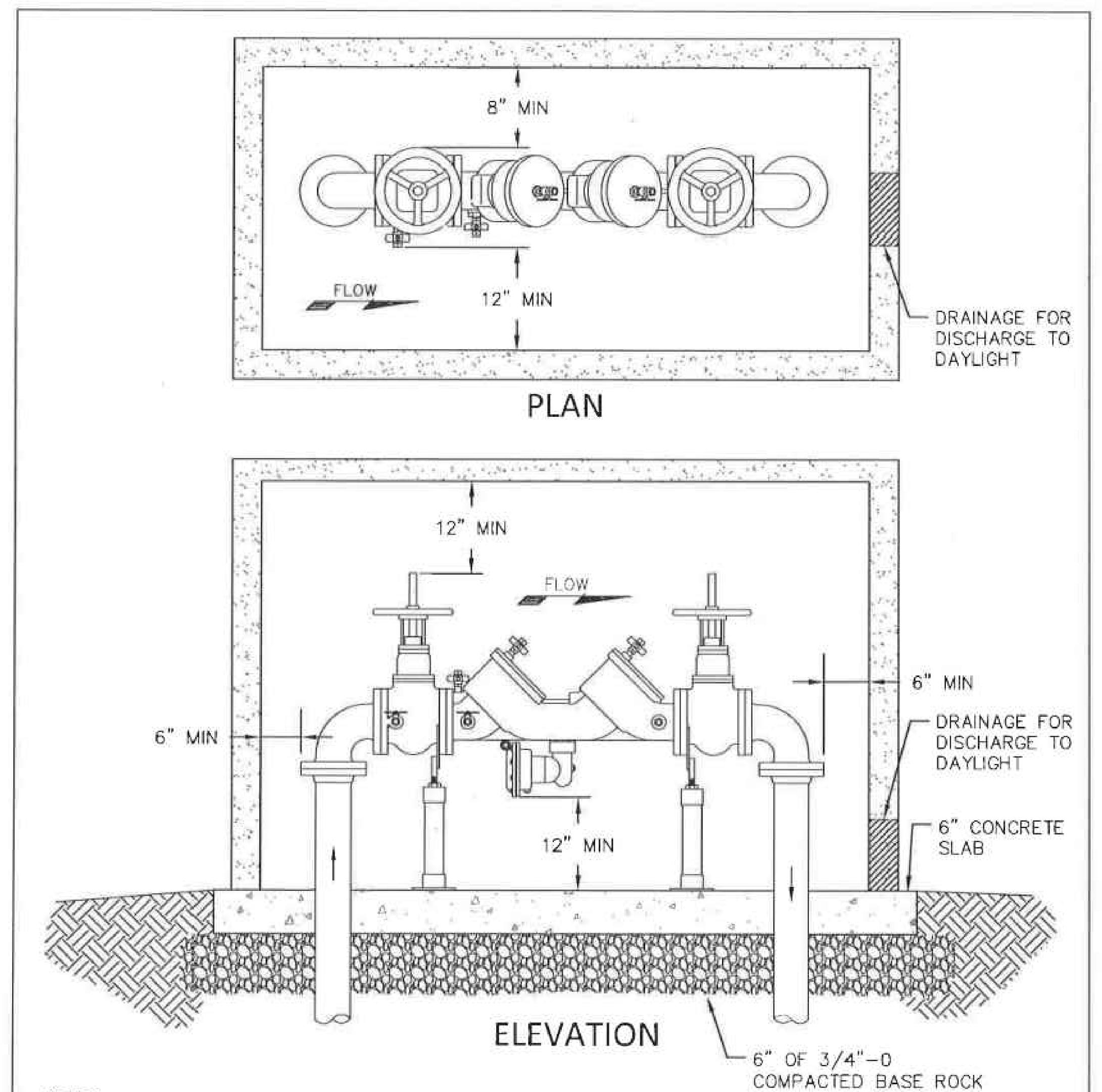
NOTES:
1. USE DUCTILE IRON PIPE CL 52 THROUGH VAULT AND BYPASS
2. SENSUS OMNI METER COMPLYING WITH AWWA C702 READING IN 100 CUBIC FEET AND INCORPORATING A SENSUS OMNI ENCODER WITH EACH PIT RECEPTACLE FASTENED TO THE VAULT TOP WITH TWO S.S. ANCHOR BOLTS, LABEL S AND L. ELECTRICAL WIRING FED THROUGH HOLES DRILLED IN CONCRETE TOP AND NEATLY SPIRAL WRAP PROTECTED AND TIED. PROVIDE CERTIFIED TEST FOR METER AND ENCODER BEFORE ACCEPTANCE.
3. PROVIDE MANUFACTURED ADJUSTABLE GALVANIZED STEEL SUPPORT AT INLET END OF METER
4. USE APPROVED RETAINER GLANDS WITH MJ FITTINGS. USE NO THRUST BLOCKS OR RODS.
5. CHECK VAULT FLOTATION AND CORRECT IF NECESSARY
6. PROVIDE SUMP PUMP WITH DIAPHRAGM OR VERTICAL FLOAT SWITCH AND 2" PVC CHECK VALVE AND PIPE DISCHARGE TO DAYLIGHT. SUPPLY POWER THRU GFCI INTERNAL WALL MOUNT 12" BELOW CEILING.

CITY OF TUALATIN, OR

WATER SERVICE
3" AND LARGER METER
COMPOUND TYPE

REVISED: 12/2018 VALID: 12/2018 | SCALE: NOT TO SCALE | DRAWN: C. FERGESON APPROVED: K. MCMILLAN | DWG NO. 634

3 WATER METER
SCALE: NTS



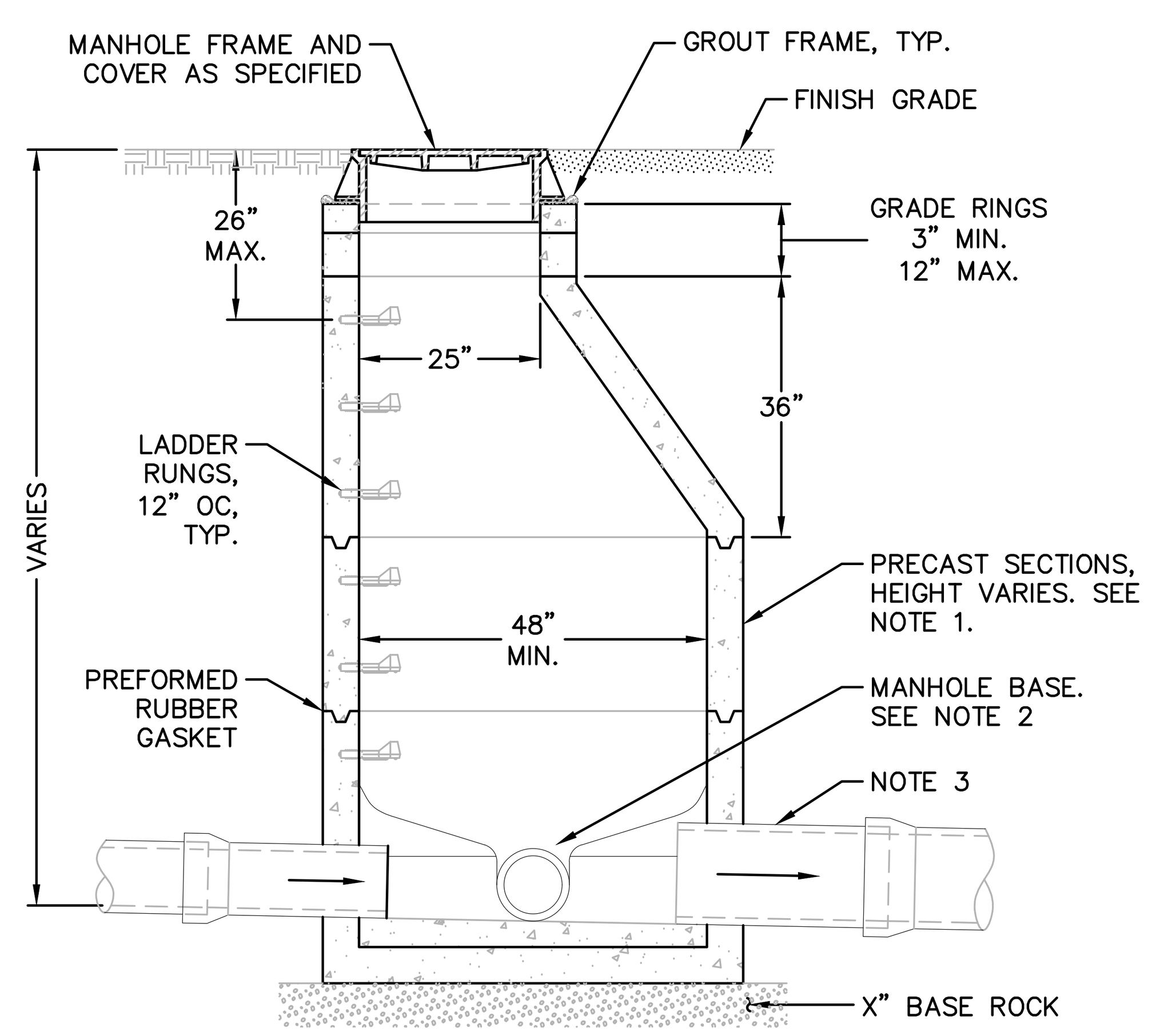
NOTES:
1. COMPLY WITH OAR 333-61-070 AND AWWA C511, WHICH REQUIRES BACKFLOW ASSEMBLY TO BE APPROVED BY THE OREGON STATE HEALTH DIVISION. FLUSH SUPPLY LINE BEFORE INSTALLATION.
2. MOUNT ASSEMBLY ABOVE GROUND IN A HEATED, INSULATED AND PROTECTIVE ENCLOSURE (HOT BOX OR SIMILAR) AT THE RIGHT-OF-WAY IN A LOCATION APPROVED BY CITY OF TUALATIN.
3. PLACE FLOOR LEVEL ABOVE THE 100-YEAR FLOOD ELEVATION WITH ADEQUATE DRAINAGE FOR DISCHARGE TO DAYLIGHT CAPABLE OF DRAINING A FULL RELIEF VALVE DISCHARGE, SIZED PER AWWA STANDARDS.
4. DESIGNED HEATING TO MAINTAIN A MINIMUM AMBIENT TEMPERATURE OF 40°F WITH AN OUTSIDE TEMPERATURE OF -10°F AND WIND SPEED OF 20 MPH.
5. CLEARANCES SHOWN ARE MINIMUM.
6. WALL MOUNT ALL ELECTRICAL EQUIPMENT TO MEET ALL RELEVANT CODES FOR ELECTRICAL EQUIPMENT AND INSTALLATION.
7. PROVIDE INSPECTOR WITH CERTIFIED TEST REPORT UPON COMPLETION.

CITY OF TUALATIN, OR

REDUCED PRESSURE
BACKFLOW ASSEMBLY
2-1/2" THRU 10"

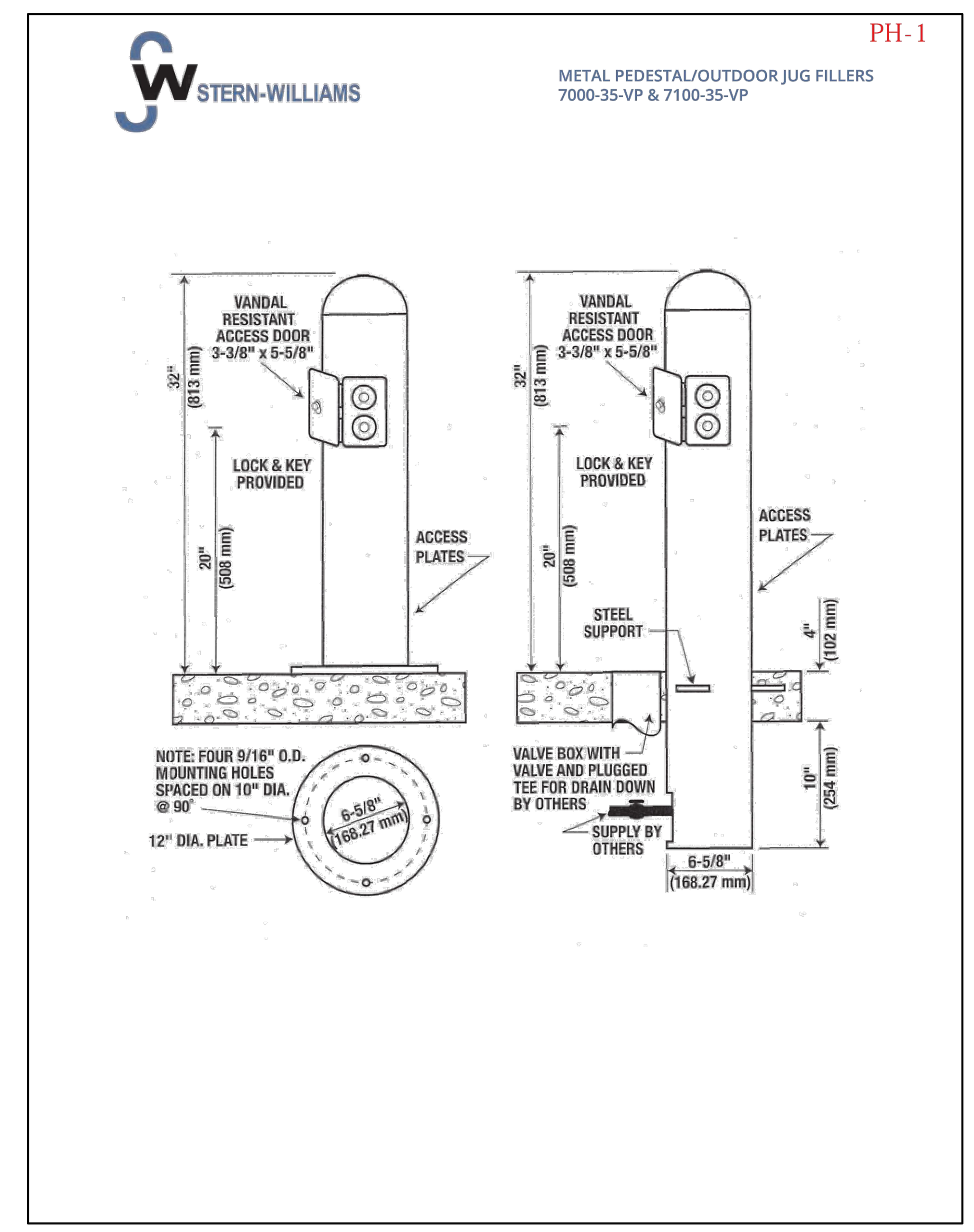
REVISED: 12/2018 VALID: 12/2018 | SCALE: NOT TO SCALE | DRAWN: C. FERGESON APPROVED: K. MCMILLAN | DWG NO. 617

1 REDUCED PRESURE BACKFLOW ASSEMBLY
SCALE: NTS



NOTES:
1. ALL PRECAST SECTIONS SHALL CONFORM TO REQUIREMENTS OF ASTM C-478.
2. MANHOLE BASE MAY BE PRECAST OR CAST IN PLACE. SEE STANDARD MANHOLE BASE DETAILS.
3. ALL CONNECTING PIPES SHALL HAVE FLEXIBLE, GASKETED AND UNRESTRAINED JOINT WITHIN 18" OF MANHOLE VAULT..

4 STANDARD MANHOLE
SCALE: NTS



2 YARD HYDRANT
SCALE: NTS

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PORTLAND GENERAL ELECTRIC INTEGRATED OPERATIONS CENTER

PORTLAND GENERAL ELECTRIC
12150 SW TUALATIN-SHERWOOD ROAD
TUALATIN, OR 97062

EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

REVISIONS

CHECKED BY: MR
ISSUE DATE: 3 JUNE 2019
PROJECT NO: P18-003

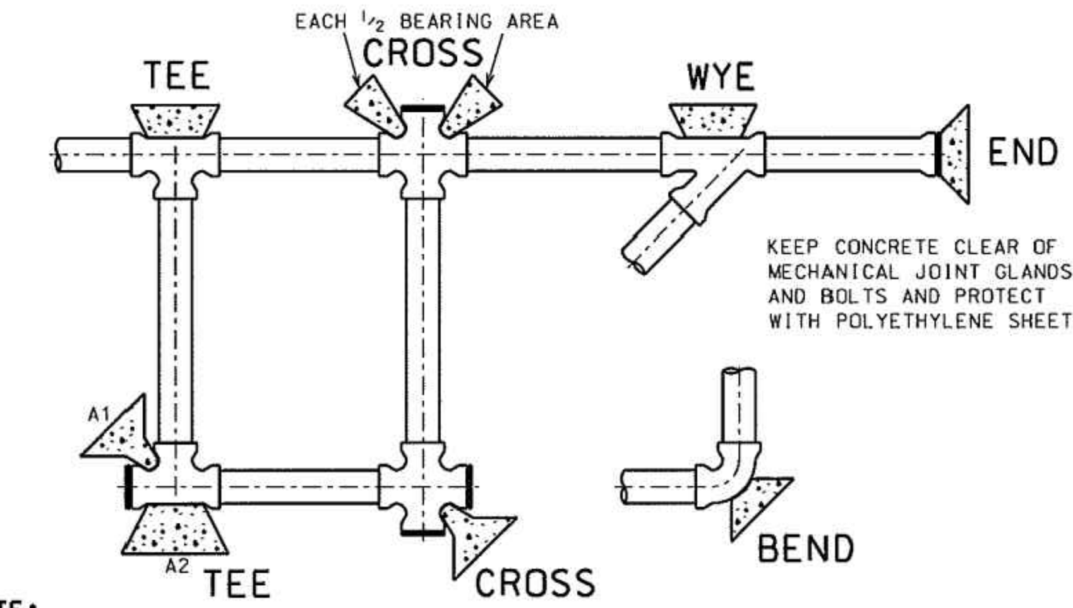
DETAILS

MG C805

File: N:\c\p\2018\180045-PGE-Integrated-Operations-Center\CAD\PLOT\8045-C802-DETL.dwg TAB:C805
Plotted: 5/31/19 at 1:45pm By: jSweeney
3/11/2019 9:59:29 AM
SERA Design and Architecture, Inc.

THRUST BLOCK REQUIREMENTS AT SOIL/CONCRETE INTERFACE

1. BLOCK HEIGHT TO BE LESS THAN 1/2 TOTAL DEPTH SOIL SURFACE TO BOTTOM OF BLOCK BUT NOT LESS THAN PIPE DIAMETER
2. BLOCK WIDTH TO VARY BETWEEN EQUAL TO OR NOT GREATER THAN TWICE BLOCK HEIGHT



NOTE:
THRUST BLOCKS TO BE USE ONLY WHEN CONNECTING TO AN UNKNOWN LENGTH OF PIPE OTHERWISE USE APPROVED MJ RETAINER GLANDS AND RESTRAINED PIPE

FITTING SIZE INCHES	BEARING AREA SQ. FT.					
	BEND 90° CROSS TEE A1	TEE A2	TEE WYE END	BEND 45°	BEND 22.5°	BEND 11.25°
3	1.31	1.85	0.92	0.71	0.36	0.18
4	1.92	2.71	1.36	1.04	0.53	0.27
6	3.97	5.61	2.80	2.15	1.09	0.55
8	6.82	9.65	4.82	3.69	1.88	0.95
10	10.26	14.52	7.26	5.55	2.83	1.42
12	14.51	20.53	10.26	7.86	4.00	2.01
14	19.50	27.58	13.79	10.55	5.38	2.70
16	25.22	35.67	17.83	13.65	6.96	3.50
18	31.68	44.80	22.40	17.14	8.74	4.39
20	38.87	54.97	27.48	21.03	10.72	5.39
24	55.45	78.42	39.21	30.01	15.30	7.69

DESIGN CRITERIA:

1. TEST PRESSURE 150 LB/SQ.IN., CONCRETE 3300-1 1/2", AFTER POURING BLOCK DO NOT APPLY TEST PRESSURE FOR AT LEAST FIVE DAYS.
2. SAFETY FACTOR 1.5, SOIL SANDY SILY WITH BEARING STRENGTH 3,000 LB/SQ.FT.
3. CONCRETE POURED AGAINST UNDISTURBED SOIL OR SOIL COMPACTED TO AT LEAST 91% MODIFIED PROCTOR DENSITY, T-180
4. SUBMIT BEARING AREA CALCULATIONS WITH CHANGE IN SOIL OR TEST PRESSURE

CITY OF TUALATIN, OR	PIPE JOINT RESTRAINT BEARING THRUST BLOCKS		
REVISED: 2/2002 VALID: 7/2003	SCALE: NOT TO SCALE	DRAWN: D.L. APPROVED: K.L.H.	DWG NO. 620

1 THRUST BLOCKS
SCALE: NTS

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Plotted: 5/31/19 at 1:45pm By: jSweeney
3/11/2019 9:59:29 AM SERA Design and Architecture, Inc.

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REVISIONS

CHECKED BY: MR
ISSUE DATE: 3 JUNE 2019
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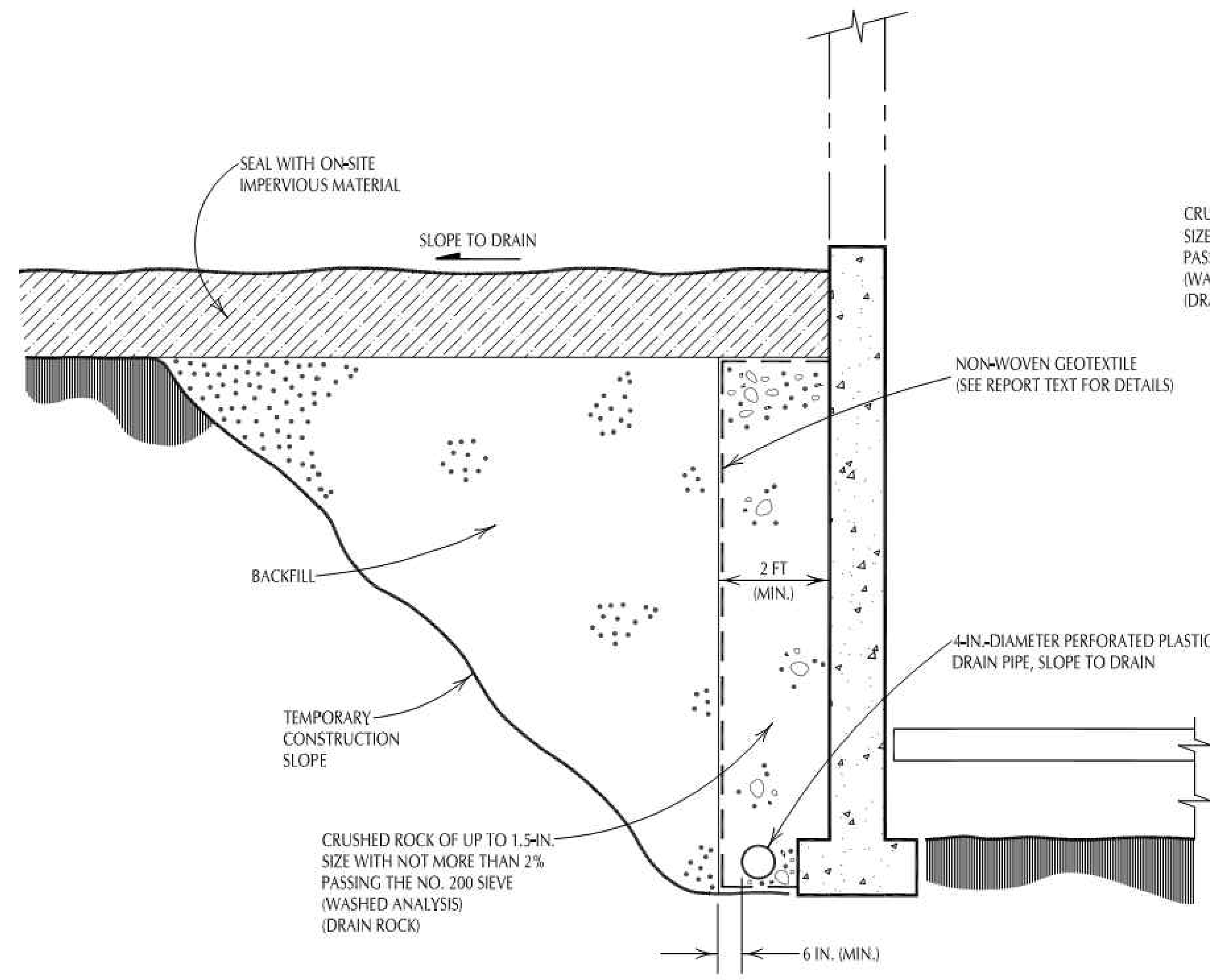
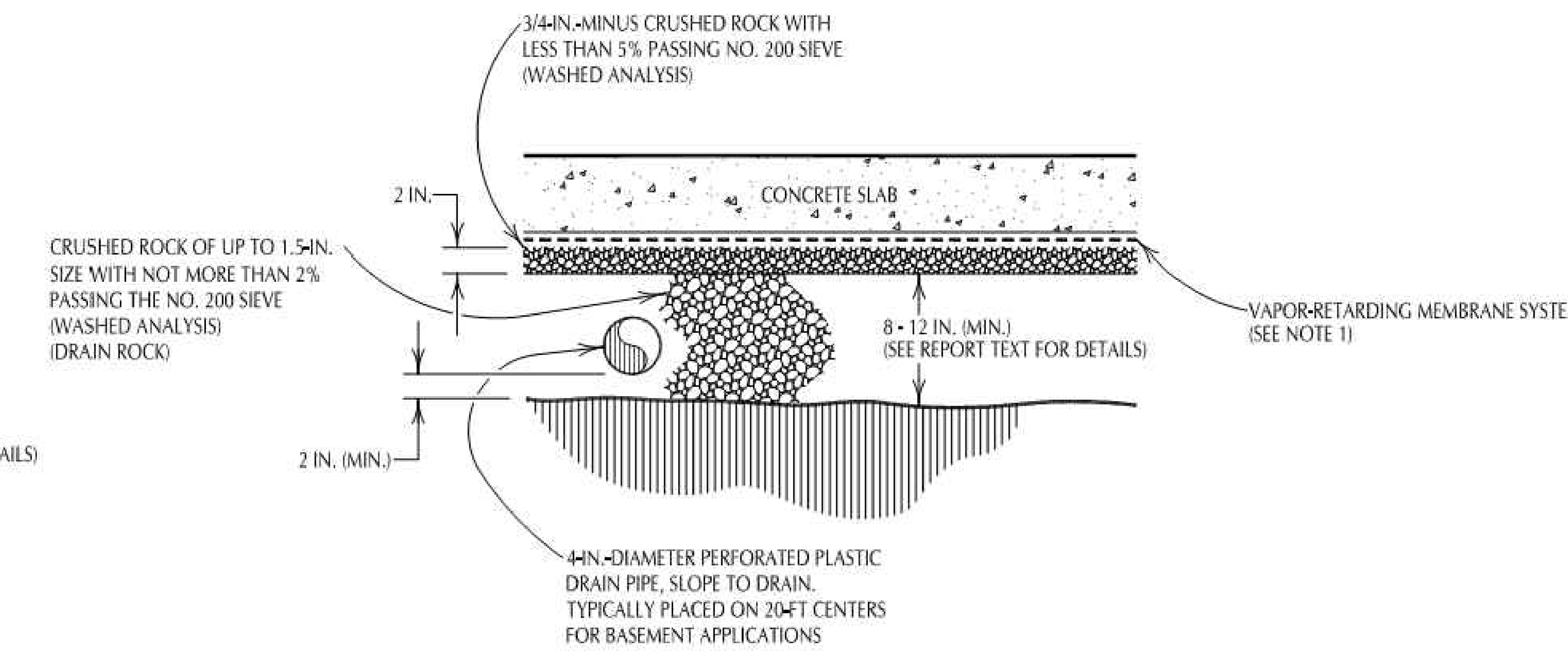
EXCAVATION, GRADING, AND EROSION CONTROL PERMITS

DETAILS

MG C806



PERIMETER WALL DRAINAGE



UNDERSLAB DRAINAGE

NOTES:

1) A VAPOR-RETARDING MEMBRANE SYSTEM IS RECOMMENDED FOR MOISTURE-SENSITIVE AREAS.
2) DETAILS REGARDING INSTALLATION OF THE SYSTEM SHOULD BE REVIEWED BY THE DESIGN TEAM.

GRI — DREYFESS & BLACKFORD ARCHITECTURE, PGE IOC

TYPICAL SUBDRAINAGE DETAILS

FEB. 2019 | JOB NO. 6200 | FIG. 4

1 TYPICAL SUBDRAINAGE DETAILS

SCALE: NTS

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REVISIONS

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ISSUE DATE: 3 JUNE 2019
PROJECT NO: P18-003

DETAILS

MG C807

File: N:\c\p\2018\1800045-PGE-Integrated-Operations-Center\CAD\PLOT\8045-C802-DETL.dwg TAB:C807
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