

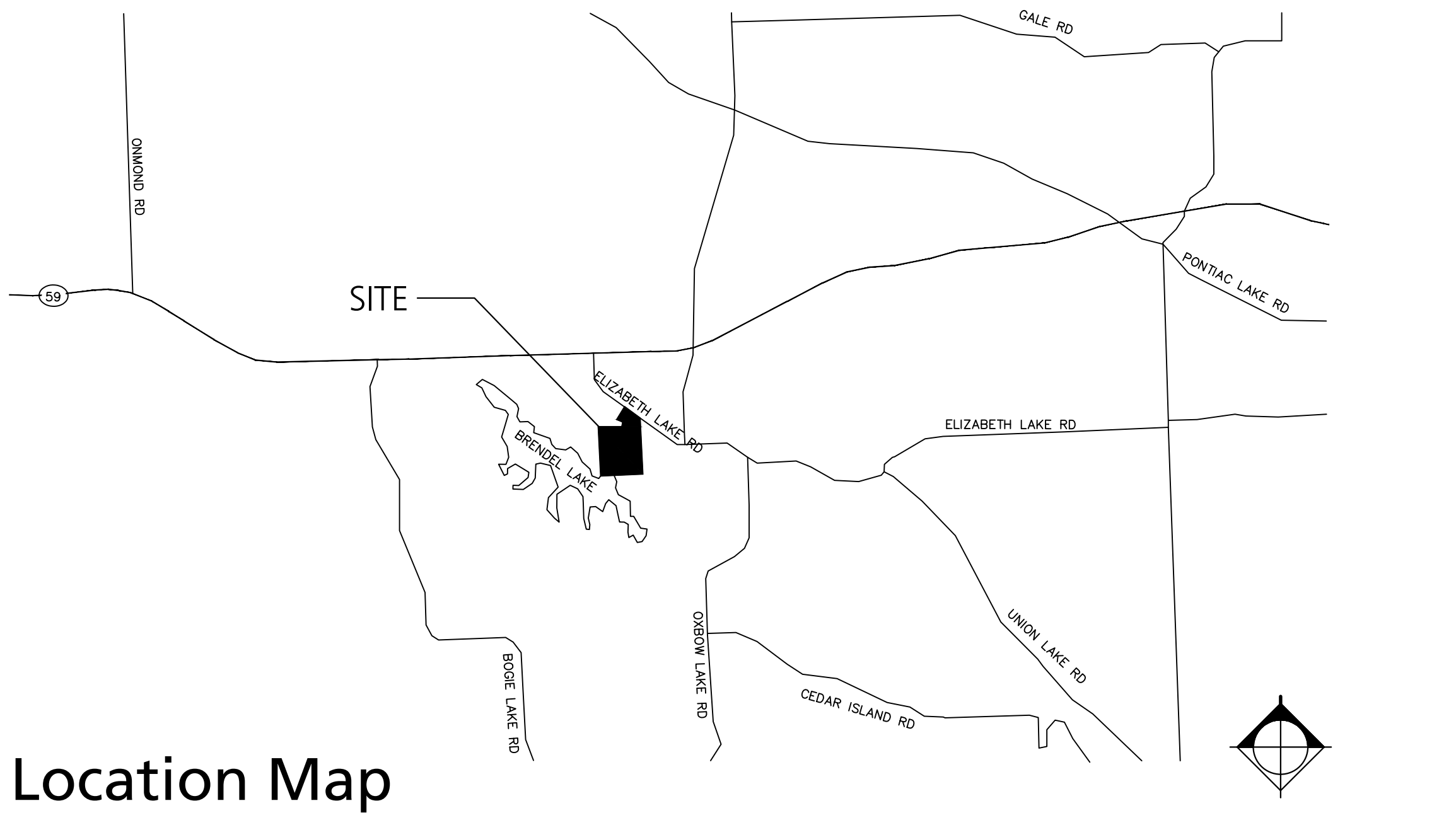
STANLEY PARK IMPROVEMENTS

(MDNR Project No. 26-01868)

Date Issued: June 15, 2023

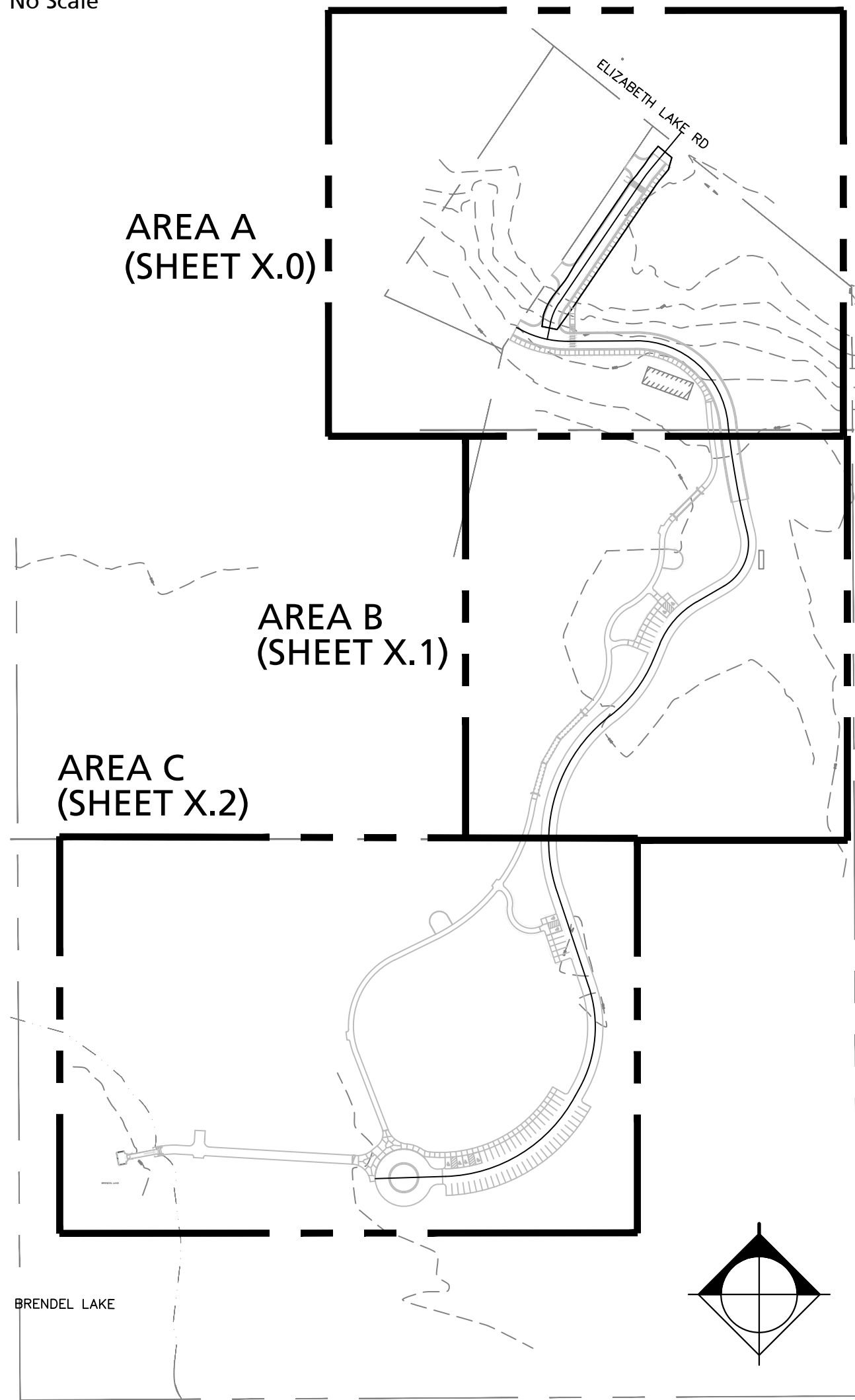
BIDDING

10785 Elizabeth Lake Rd, White Lake Township, Michigan



Location Map

No Scale



Key Map

No Scale

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Consultant Team

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KEM-TEC
A GROUP OF COMPANIES
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General Requirements Notes

- The White Lake Township Stanley Park Improvements project is partially funded by The Land and Water Conservation Fund (LWCF) program, utilizing Federal fund administered locally by the Michigan Department of Natural Resources (MDNR). The Contractor shall comply with all LWCF grant program and agency requirements including but not limited to:
 - Build America, Buy America requirements, as required by Section 70914 of the Bipartisan Infrastructure Law
 - Americans with Disabilities Act (ADA) of 2010, as amended.
 - 2013 Access Board's Final Guidelines for Outdoor Developed Areas (ODA).
- The US Fish and Wildlife Services (USFWS) has Identified that Stanley Park contains habitat suitable for several protected status species. As a result, the USFWS conducted an Endangered Species Act (ESA) of 1973. Section 7 Formal Consultation and produced a USFWS Ecological Services Program Biological Opinion. The Biological Opinion is incorporated into these contract documents as an appendix in this project manual. The Contractor shall conform with all requirements contained within the Biological Opinion.

Preceding and Concurrent Work Notes

- Prior to Contract initiation, Owner will perform cutting of trees and brush indicated for removal on the plans. Project Contractor will remain responsible for stump and root removal. Contractor shall inspect the site prior to bidding to confirm completeness of Owner's work. Any additional removal required based on project plans shall be included in the Contractor's bid price.
- Elizabeth Lake Road Reconstruction project (by others) will be constructed concurrently with this Stanley Park Improvements project. Contractors shall mutually coordinate construction activities so as to not hinder each other's work.

Bid Alternates

Alternate 1 - Road Paving. Provide and construct "Bituminous Pavement - Heavy Duty" for roadway and parking areas indicated as base bid "Gravel Drive". Portions of roadway included in Alternate 1 paving will be edged with 2' width gravel shoulder in lieu of concrete curb and gutter. Refer to Drawings for additional information.

Alternate 2 -Parking. Provide and construct two (2) additional 9-space parking areas in the central portion of the park. Alternate also includes related grading, sidewalks, pathways, and signage associated with the parking areas. Refer to Drawings for additional information

Alternate 3 - Timber Bollards. Provide and construct timber traffic control bollards at roadway shoulders. Refer to Drawings for additional information.

Alternate 4 - Exercise Station. Provide and construct Exercise Station 'B' in the central area of the park, including associated grading, timber edge, and safety surfacing. Refer to Drawings for additional information.

Alternate 5 - Sidewalk. Provide and construct sidewalk as indicated on Drawings, north and west of remnant block building, including associated grading and restoration. Refer to Drawings for additional information.

Miss Dig Notes

Contractor shall call Miss Dig (811) a minimum of three working days prior to start of construction, excluding weekends and holidays.



Know what's below.
Call before you dig.

Abbreviations

BIT	Bituminous	GV	Gate Valve	OC	On Center
AC	Acre	HD	Heavy Duty	OHWM	Ordinary High Water Mark
ADA	American's with Disabilities Act	HP	High Point	PR	Proposed
BM	Bench Mark	INV	Invert Elevation	SESC	Soil Erosion and Sediment Control
BIT	Bituminous	LOD	Limit of Disturbance	SD	Standard Duty
BC	Bottom of Curb	LP	Low Point	TC	Top of Curb
CAL	Caliper	MAX	Maximum	TYP	Typical
CB	Catch Basin	MDNR	Michigan Department of Natural Resources	UP	Utility Pole
DIA	Diameter	MIN	Minimum	VOL	Volume
ELEV	Elevation	NRCS	Natural Resources Conservation Services		
EX	Existing				
FES	Flared end section				

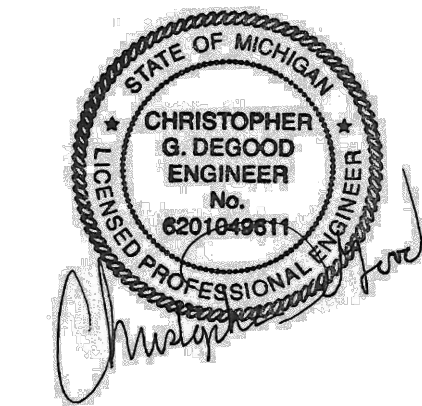
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White Lake Twp.
Stanley Park
Phase 1 Implementation
MDNR Project No. 26-01868

White Lake Township, MI

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Quality Control

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Checked: LDS, BB

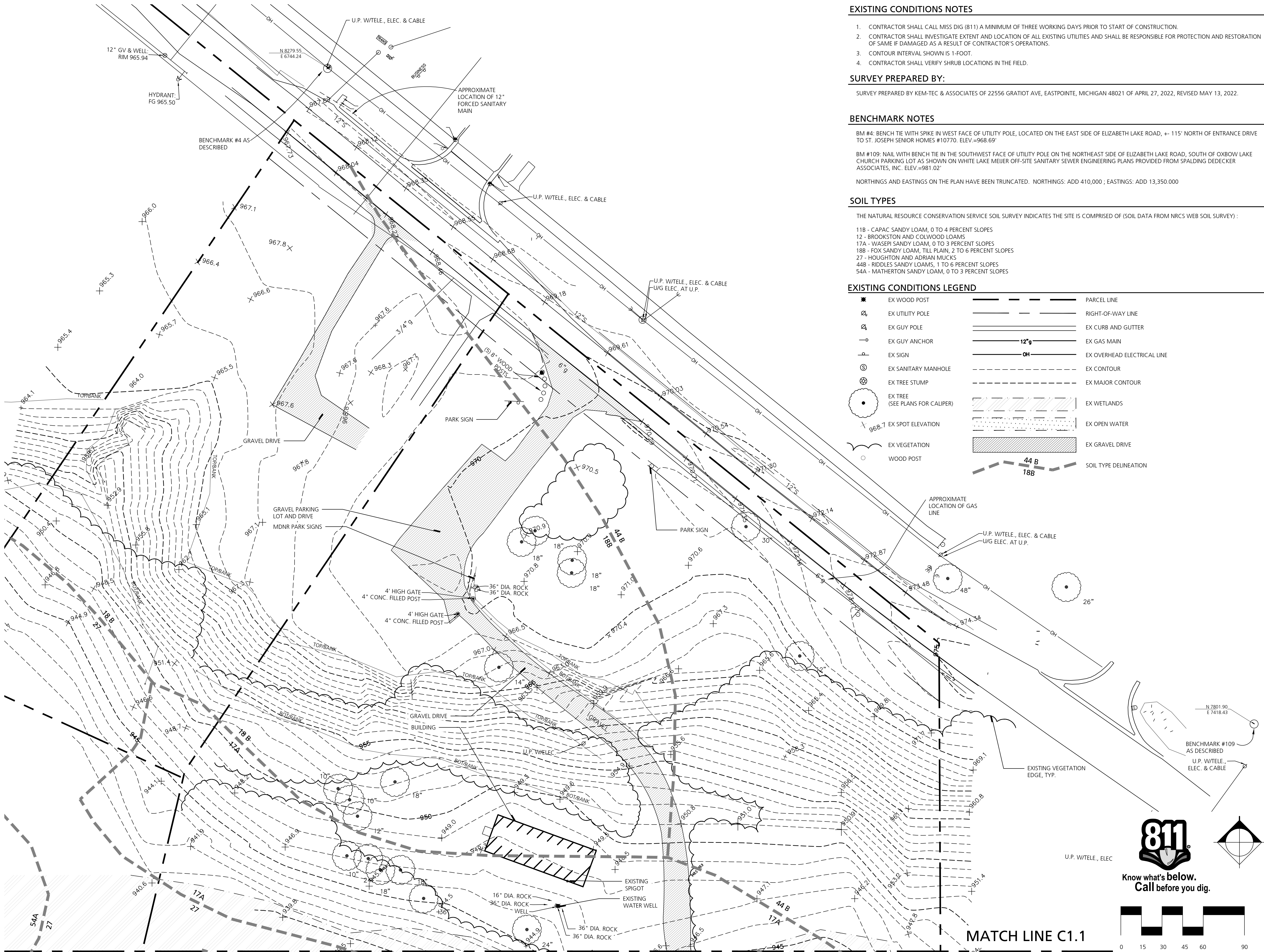
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Sheet Number

C0.0 COVER SHEET



EXISTING CONDITIONS NOTES

1. CONTRACTOR SHALL CALL MISS DIG (811) A MINIMUM OF THREE WORKING DAYS PRIOR TO START OF CONSTRUCTION.
2. CONTRACTOR SHALL INVESTIGATE EXTENT AND LOCATION OF ALL EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR PROTECTION AND RESTORATION OF SAME IF DAMAGED AS A RESULT OF CONTRACTOR'S OPERATIONS.
3. CONTOUR INTERVAL SHOWN IS 1-FOOT.
4. CONTRACTOR SHALL VERIFY SHRUB LOCATIONS IN THE FIELD.

SURVEY PREPARED BY:

SURVEY PREPARED BY KEM-TEC & ASSOCIATES OF 22556 GRATIOT AVE, EASTPOINTE, MICHIGAN 48021 OF APRIL 27, 2022, REVISED MAY 13, 2022.

BENCHMARK NOTES

BM #4: BENCH TIE WITH SPIKE IN WEST FACE OF UTILITY POLE, LOCATED ON THE EAST SIDE OF ELIZABETH LAKE ROAD, +- 115' NORTH OF ENTRANCE DRIVE TO ST. JOSEPH SENIOR HOMES #10770. ELEV.=968.69'

BM #109: NAIL WITH BENCH TIE IN THE SOUTHWEST FACE OF UTILITY POLE ON THE NORTHEAST SIDE OF ELIZABETH LAKE ROAD, SOUTH OF OXBOW LAKE CHURCH PARKING LOT AS SHOWN ON WHITE LAKE MEIJER OFF-SITE SANITARY SEWER ENGINEERING PLANS PROVIDED FROM SPALDING DEDECKER ASSOCIATES, INC. ELEV.=981.02'

NORTHINGS AND EASTINGS ON THE PLAN HAVE BEEN TRUNCATED. NORTHINGS: ADD 410,000; EASTINGS: ADD 13,350.000

SOIL TYPES

THE NATURAL RESOURCE CONSERVATION SERVICE SOIL SURVEY INDICATES THE SITE IS COMPRISED OF (SOIL DATA FROM NRCS WEB SOIL SURVEY) :

- 11B - CAPAC SANDY LOAM, 0 TO 4 PERCENT SLOPES
- 12 - BROOKSTON AND COLWOOD LOAMS
- 17A - WASEPI SANDY LOAM, 0 TO 3 PERCENT SLOPES
- 18B - FOX SANDY LOAM, TILL PLAIN, 2 TO 6 PERCENT SLOPES
- 27 - HOUGHTON AND ADRIAN MUCKS
- 44B - RIDDLES SANDY LOAMS, 1 TO 6 PERCENT SLOPES
- 54A - MATHERTON SANDY LOAM, 0 TO 3 PERCENT SLOPES

EXISTING CONDITIONS LEGEND

■	EX WOOD POST	— — — — —	PARCEL LINE
⌘	EX UTILITY POLE	— — — — —	RIGHT-OF-WAY LINE
⌘	EX GUY POLE	— — — — —	EX CURB AND GUTTER
—○—	EX GUY ANCHOR	— 12" g —	EX GAS MAIN
⊕	EX SIGN	— OH —	EX OVERHEAD ELECTRICAL LINE
⊕	EX SANITARY MANHOLE	- - - - -	EX CONTOUR
⊕	EX TREE STUMP	- - - - -	EX MAJOR CONTOUR
⊕	EX TREE (SEE PLANS FOR CALIPER)	[Hatched Box]	EX WETLANDS
⊕	EX SPOT ELEVATION	[Dotted Box]	EX OPEN WATER
⊕	EX VEGETATION	[Hatched Box]	EX GRAVEL DRIVE
○	WOOD POST	[Dashed Box]	SOIL TYPE DELINEATION

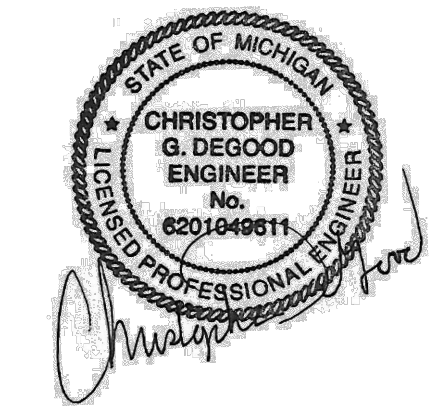
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Phase 1 Implementation
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Checked: LDS, BB

Approved: BB

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C1.0 EXISTING CONDITIONS
PLAN - AREA A

MATCH LINE C1.0



MATCH LINE C1.2

EXISTING CONDITIONS NOTES & LEGENDS

FOR EXISTING CONDITIONS NOTES AND LEGENDS SEE SHEET C1.0

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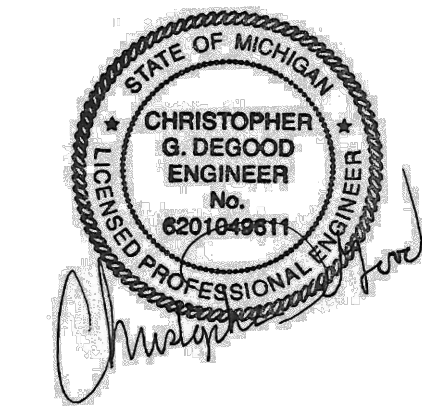
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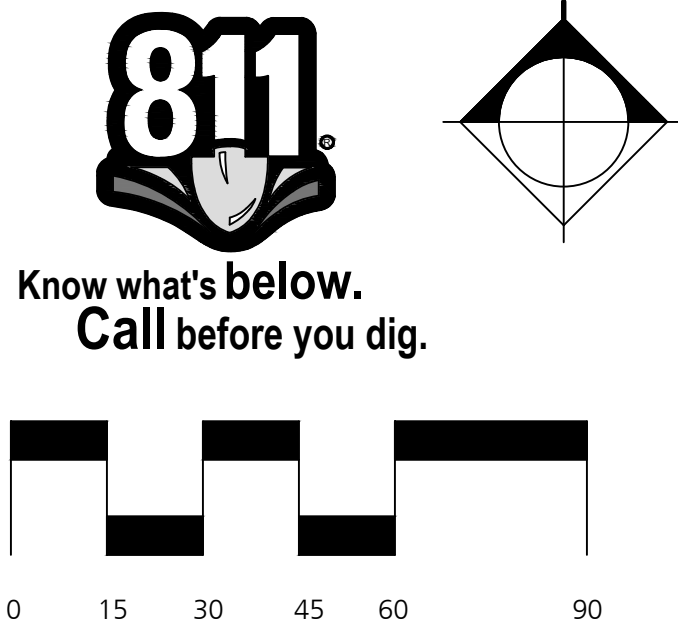
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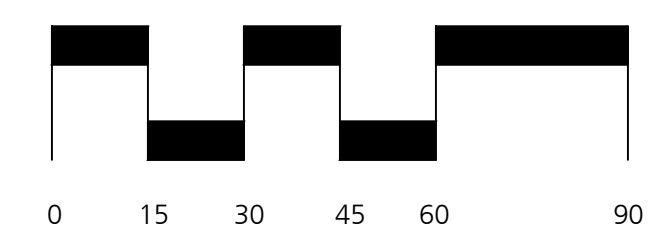
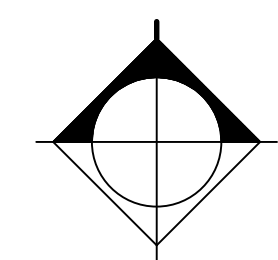
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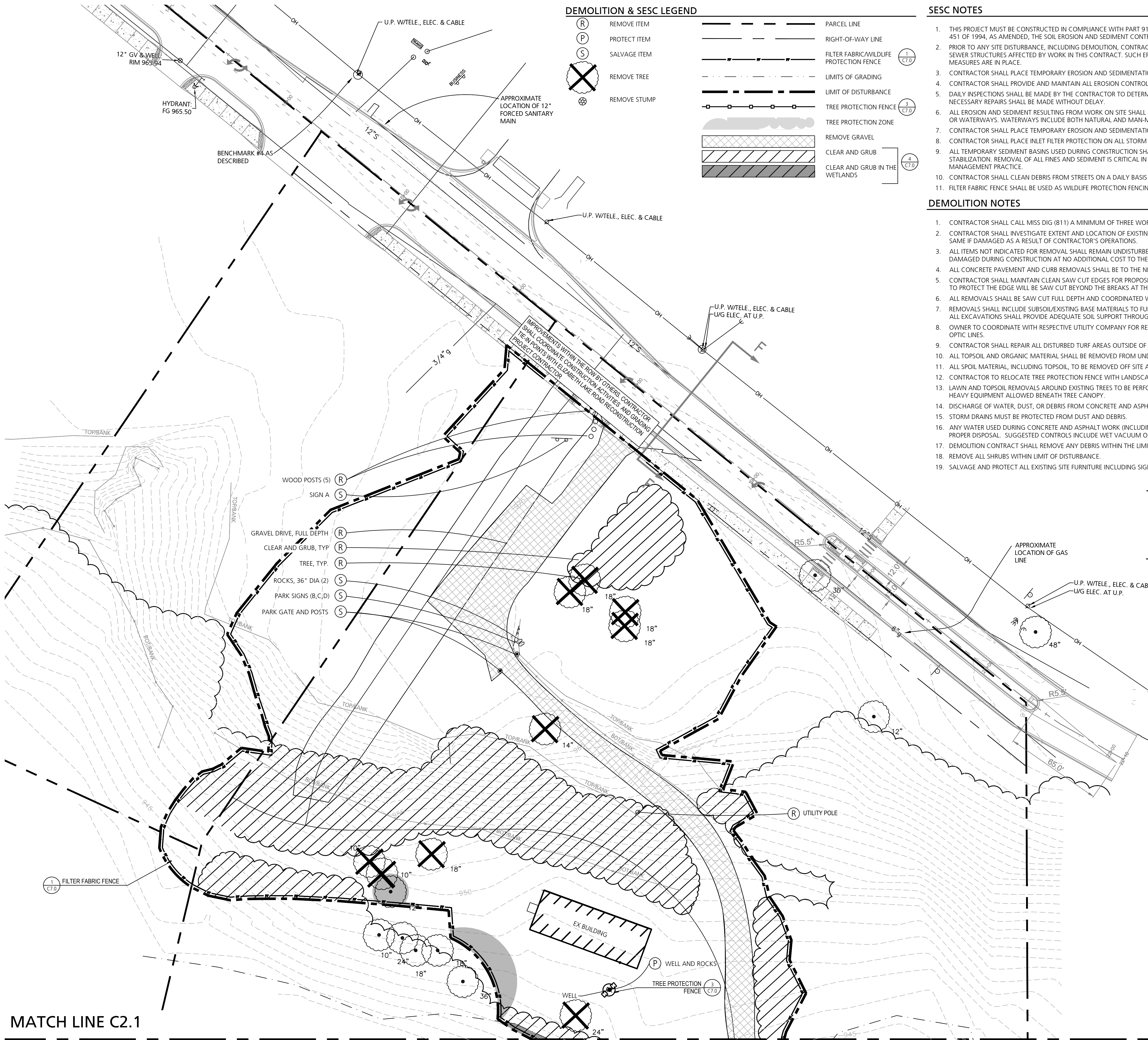
C1.1 EXISTING CONDITIONS
PLAN - AREA B





Know what's **below**.
Call before you dig.





DEMOLITION & SESC LEGEND

(R)	REMOVE ITEM	---	PARCEL LINE
(P)	PROTECT ITEM	---	RIGHT-OF-WAY LINE
(S)	SALVAGE ITEM	---	FILTER FABRIC/WILDLIFE PROTECTION FENCE
(X)	REMOVE TREE	---	LIMITS OF GRADING
(X)	REMOVE STUMP	---	LIMIT OF DISTURBANCE
		---	TREE PROTECTION FENCE
		---	TREE PROTECTION ZONE
		---	REMOVE GRAVEL
		---	CLEAR AND GRUB
		---	CLEAR AND GRUB IN THE WETLANDS

SESC NOTES

- THIS PROJECT MUST BE CONSTRUCTED IN COMPLIANCE WITH PART 91 OF MICHIGAN NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION ACT 451 OF 1994, AS AMENDED, THE SOIL EROSION AND SEDIMENT CONTROL ACT.
- PRIOR TO ANY SITE DISTURBANCE, INCLUDING DEMOLITION, CONTRACTOR SHALL PLACE EROSION CONTROL MEASURES ON ALL EXISTING STORM SEWER STRUCTURES AFFECTED BY WORK IN THIS CONTRACT. SUCH EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL PERMANENT MEASURES ARE IN PLACE.
- CONTRACTOR SHALL PLACE TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES AS REQUIRED AND SHOWN ON PLANS.
- CONTRACTOR SHALL PROVIDE AND MAINTAIN ALL EROSION CONTROL MEASURES AS REQUIRED BY STATE AND LOCAL GOVERNING AUTHORITIES.
- DAILY INSPECTIONS SHALL BE MADE BY THE CONTRACTOR TO DETERMINE THE EFFECTIVENESS OF EROSION AND SEDIMENT CONTROL MEASURES. ANY NECESSARY REPAIRS SHALL BE MADE WITHOUT DELAY.
- ALL EROSION AND SEDIMENT RESULTING FROM WORK ON SITE SHALL BE CONTAINED ON SITE AND NOT ALLOWED TO COLLECT IN ANY OFF-SITE AREAS OR WATERWAYS. WATERWAYS INCLUDE BOTH NATURAL AND MAN-MADE OPEN DITCHES, STREAMS, STORM DRAINS, RIVERS, OR PONDS.
- CONTRACTOR SHALL PLACE TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES AS REQUIRED AND SHOWN ON PLANS.
- CONTRACTOR SHALL PLACE INLET FILTER PROTECTION ON ALL STORM STRUCTURES AFFECTED BY THIS PROJECT.
- ALL TEMPORARY SEDIMENT BASINS USED DURING CONSTRUCTION SHALL BE CLEANED AND ALL SEDIMENT LEGALLY DISPOSED OF PRIOR TO STABILIZATION. REMOVAL OF ALL FINES AND SEDIMENT IS CRITICAL IN AREAS WHERE INFILTRATION PRACTICES SHALL BECOME PERMANENT BEST MANAGEMENT PRACTICE.
- CONTRACTOR SHALL CLEAN DEBRIS FROM STREETS ON A DAILY BASIS AS NEEDED. STREETS SHALL BE SWEEPED WEEKLY.
- FILTER FABRIC FENCE SHALL BE USED AS WILDLIFE PROTECTION FENCING.

DEMOLITION NOTES

- CONTRACTOR SHALL CALL MISS DIG (811) A MINIMUM OF THREE WORKING DAYS PRIOR TO START OF CONSTRUCTION.
- CONTRACTOR SHALL INVESTIGATE EXTENT AND LOCATION OF EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR PROTECTION AND RESTORATION OF SAME IF DAMAGED AS A RESULT OF CONTRACTOR'S OPERATIONS.
- ALL ITEMS NOT INDICATED FOR REMOVAL SHALL REMAIN UNDISTURBED AND PROTECTED. CONTRACTOR SHALL FULLY RESTORE ANY ITEMS/MATERIALS DAMAGED DURING CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER.
- ALL CONCRETE PAVEMENT AND CURB REMOVALS SHALL BE TO THE NEAREST JOINT BEYOND INDICATED EXTENT.
- CONTRACTOR SHALL MAINTAIN CLEAN SAW CUT EDGES FOR PROPOSED WORK TO ABUT. BROKEN EDGES RESULTING FROM CONTRACTOR'S FAILURE TO PROTECT THE EDGE WILL BE SAW CUT BEYOND THE BREAKS AT THE NEAREST JOINT, AT THE CONTRACTOR'S EXPENSE.
- ALL REMOVALS SHALL BE SAW CUT FULL DEPTH AND COORDINATED WITH LAYOUT / GRADING PLANS.
- REMOVALS SHALL INCLUDE SUBSOIL/EXISTING BASE MATERIALS TO FULL DEPTH REQUIRED FOR INSTALLATION OF NEW WORK INCLUDING BASE COURSE. ALL EXCAVATIONS SHALL PROVIDE ADEQUATE SOIL SUPPORT THROUGH THE USE OF ADEQUATE CUT SLOPES OR STRUCTURAL SHORING.
- OWNER TO COORDINATE WITH RESPECTIVE UTILITY COMPANY FOR REMOVAL OF EXISTING TRANSFORMER, ELECTRICAL, CABLE, TELEPHONE AND FIBER OPTIC LINES.
- CONTRACTOR SHALL REPAIR ALL DISTURBED TURF AREAS OUTSIDE OF PROJECT LIMITS DAMAGED DURING CONSTRUCTION.
- ALL TOPSOIL AND ORGANIC MATERIAL SHALL BE REMOVED FROM UNDER PROPOSED BUILDING, FOOTINGS, SLABS, AND PAVED AREAS.
- ALL SPOIL MATERIAL, INCLUDING TOPSOIL, TO BE REMOVED OFF SITE AND DISPOSED IN A LEGAL MANNER.
- CONTRACTOR TO RELOCATE TREE PROTECTION FENCE WITH LANDSCAPE ARCHITECT/ENGINEER'S APPROVAL IN ORDER TO ACCOMPLISH WORK.
- LAWN AND TOPSOIL REMOVALS AROUND EXISTING TREES TO BE PERFORMED WITH EXTREME CARE. REMOVALS TO BE COMPLETED BY HAND. NO HEAVY EQUIPMENT ALLOWED BENEATH TREE CANOPY.
- DISCHARGE OF WATER, DUST, OR DEBRIS FROM CONCRETE AND ASPHALT WORK TO STORM OR SANITARY SYSTEMS IS PROHIBITED.
- STORM DRAINS MUST BE PROTECTED FROM DUST AND DEBRIS.
- ANY WATER USED DURING CONCRETE AND ASPHALT WORK (INCLUDING SWEEPING AND SAWCUTTING) MUST BE CONTAINED AND COLLECTED FOR PROPER DISPOSAL. SUGGESTED CONTROLS INCLUDE WET VACUUM OR ABSORBENTS.
- DEMOLITION CONTRACT SHALL REMOVE ANY DEBRIS WITHIN THE LIMIT OF DISTURBANCE, E.G. CONCRETE MASONRY UNITS, TIMBER, LITTER.
- REMOVE ALL SHRUBS WITHIN LIMIT OF DISTURBANCE.
- SALVAGE AND PROTECT ALL EXISTING SITE FURNITURE INCLUDING SIGNS, BENCHES, 6 PICNIC TABALES, AND DOG WASTE DISPOSALS.

SALVAGED PARK SIGNS

SALVAGE AND REINSTALL WHERE SHOWN ON THE LAYOUT & MATERIALS PLAN:

- A. PARK ENTRANCE SIGN
- B. MDNR PARK SIGN
- C. LIFE GAURD NOTICE
- D. PARK RULES
- E. SWIMMING AND LAKE RULES/GUIDELINES

SESC/DEMO NOTES & LEGENDS

NOTES FOR CLEARING AND GRUBBING, AND EXCESS EXCAVATION OF SOIL NOTES CONTINUE ON SHEET C2.1

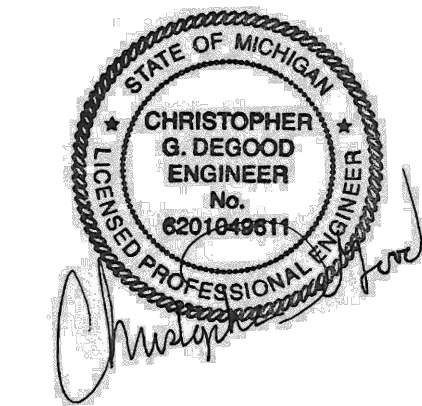
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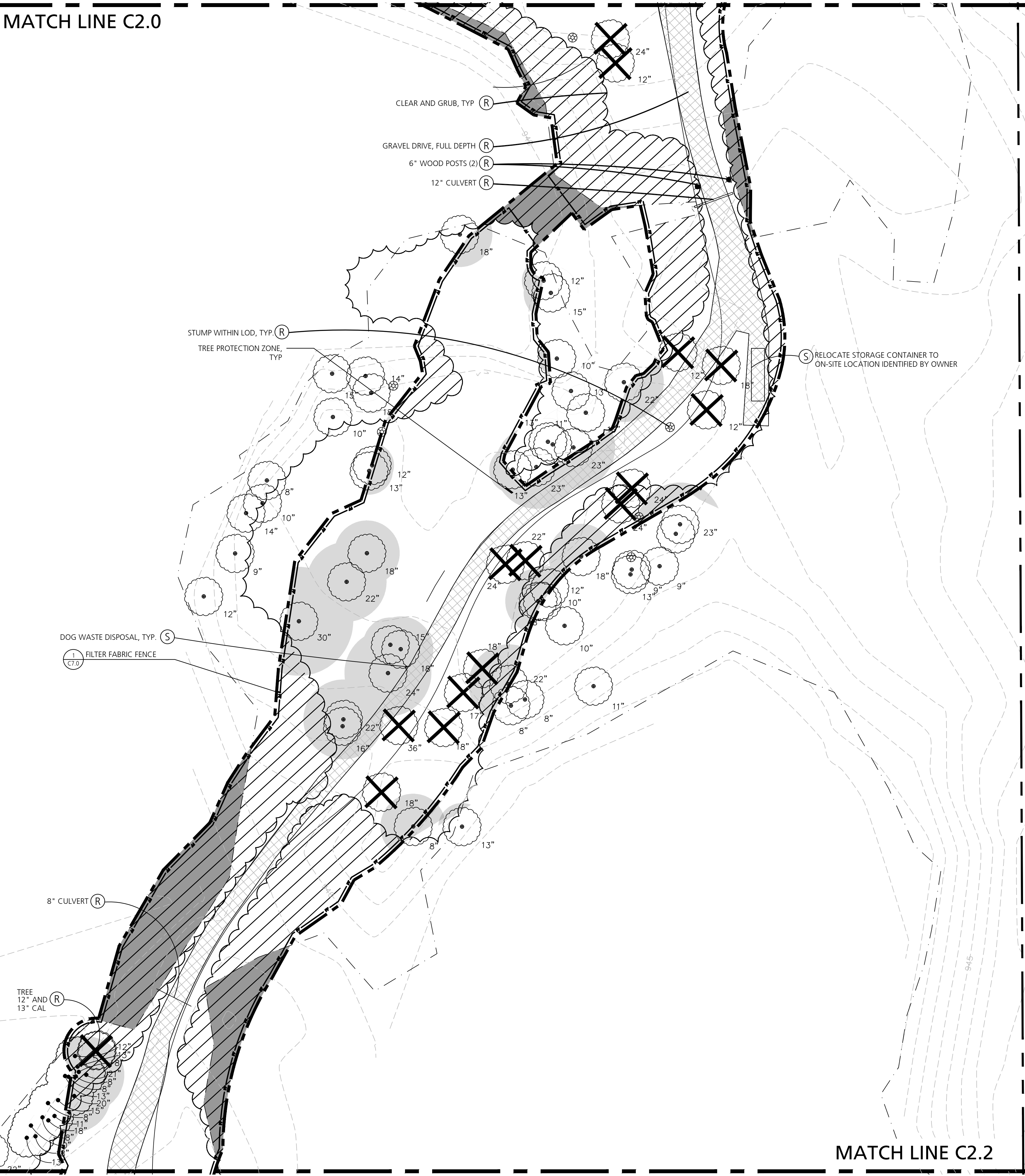
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C2.0 SESC & DEMOLITION
PLAN - AREA A

MATCH LINE C2.0



MATCH LINE C2.2

CLEARING & GRUBBING NOTES

1. PRIOR TO CONTRACT INITIATION, OWNER WILL PERFORM CUTTING OF TREES AND BRUSH INDICATED FOR REMOVAL ON THE PLANS. PROJECT CONTRACTOR WILL REMAIN RESPONSIBLE FOR STUMP AND ROOT REMOVAL. CONTRACTOR SHALL INSPECT THE SITE PRIOR TO BIDDING TO SONFIRM COMPLETENESS OF OWNER'S WORK. ANY ADDITIONAL REMOVAL REQUIRED BASED ON PROJECT PLANS SHALL BE INCLUDED IN THE CONTRACTORS BID PRICE.

EXCESS EXCAVATION SOILS NOTES

1. EXCESS SOILS GENERATED FROM PROJECT EXCAVATION SHALL BE PLACED AND STOCKPILED IN LOCATIONS TO BE IDENTIFIED BY THE OWNER IN THE ADJACENT FARM FIELD IMMEDIATELY NORTHWEST OF THE PROJECT SITE.
2. CONTRACTOR SHALL PROVIDE SESC CONTROLS AS REQUIRED BY THE LOCAL AUTHORITIES HAVING JURISDICTION INCLUDING SILT FENCE AND STOCKPILE STABILIZATION SEEDING.
3. CONTRACTOR SHALL STRIP AND STOCKPILE FARM FIELD TOPSOIL PRIOR TO PLACEMENT OF EXCESS SOILS.
4. SEPARATE EXCESS SOILS ACCORDING TO SUITABLE FILL MATERIAL, TOPSOIL, AND HIGH ORGANIC MATERIAL (MUCK, MARLE, ETC.). PLACE IN LOCATIONS IDENTIFIED BY OWNER AFTER STRIPPING FARM FIELD TOPSOIL. PLACE EXCESS SOILS CONFORMING TO LIFT THICKNESSES AND COMPACTION REQUIREMENTS OF PROJECT SPECIFICATIONS.

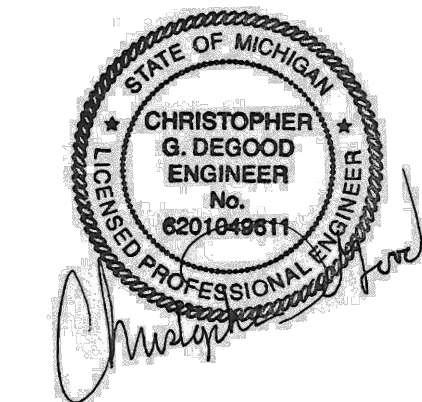
SESC/DEMO NOTES & LEGENDS

FOR SESC/DEMO NOTES AND LEGENDS SEE SHEET C2.0

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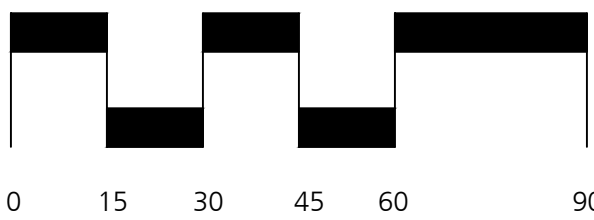
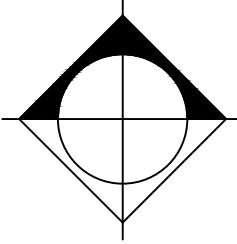
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C2.1 SESC & DEMOLITION
PLAN - AREA B



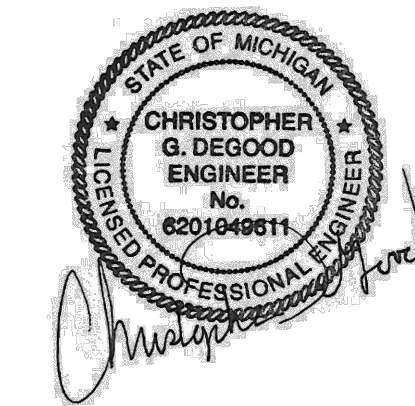
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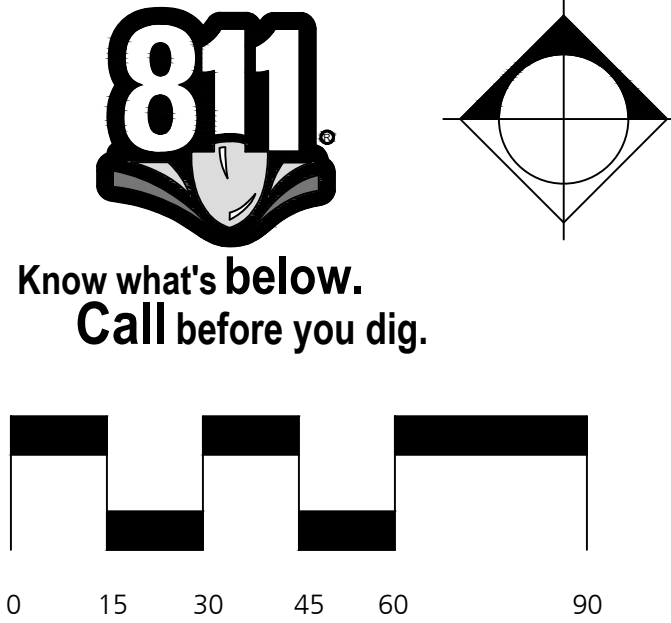
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Approved: BB

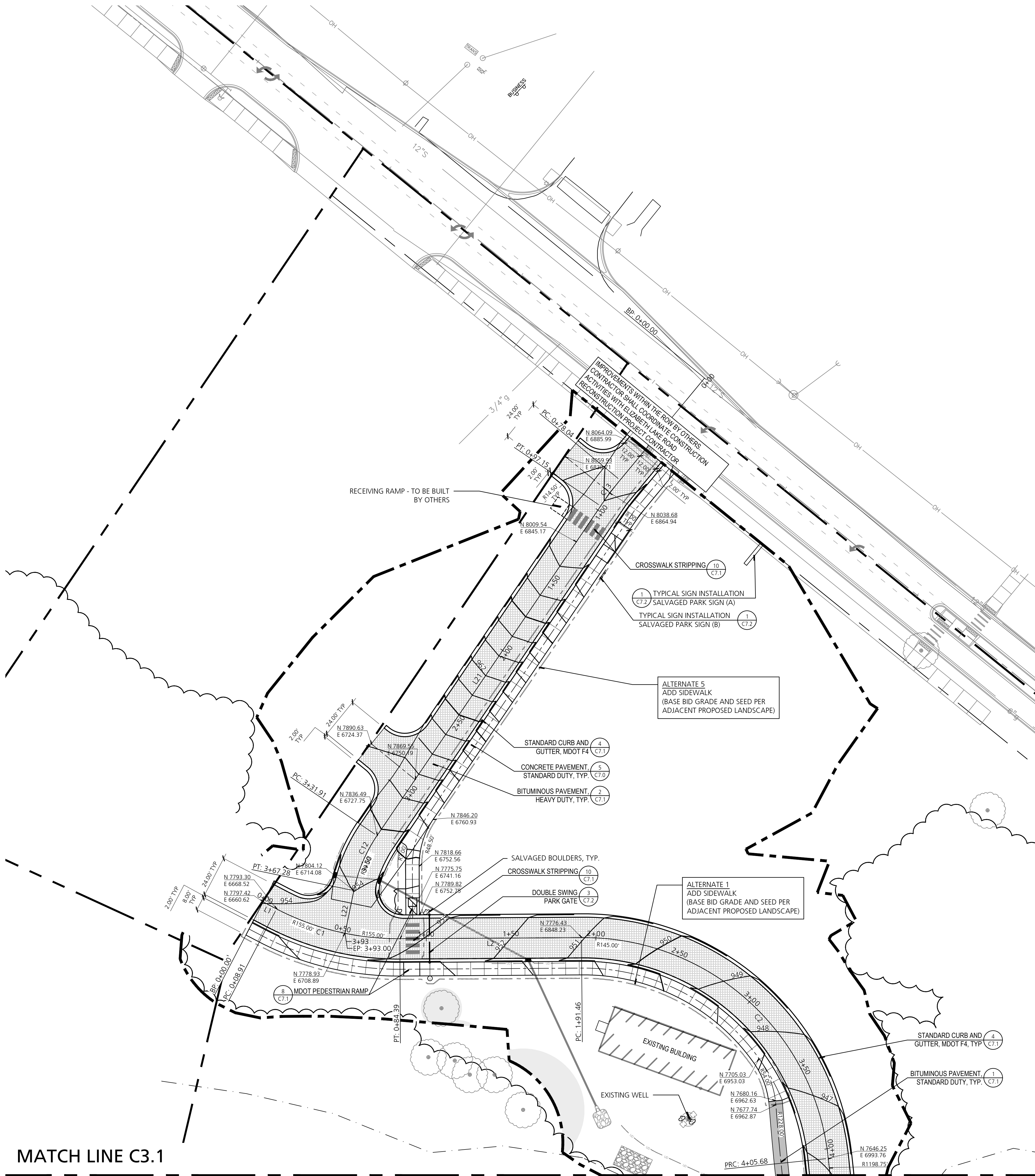
Project Number

2022024

Sheet Number

C2.2 SESC & DEMOLITION
PLAN - AREA C





MATCH LINE C3.1

LAYOUT & MATERIALS NOTES

- ALL WORK SHALL BE COMPLETED IN CONFORMANCE WITH CURRENT ADA STANDARDS.
- ALL DIMENSIONS ARE TO BACK OF CURB, FACE OF BUILDING OR EDGE OF MATERIAL UNLESS OTHERWISE NOTED.
- ALL LINES ARE PARALLEL OR PERPENDICULAR TO THE CURB/ PAVEMENT/ BUILDING LINE FROM WHICH THEY ARE DIMENSIONED UNLESS OTHERWISE NOTED.
- FOLLOWING LAYOUT OF ALL MATERIALS, CONTRACTOR SHALL REVIEW WITH OWNER'S REPRESENTATIVE.
- ANY DISCREPANCIES IN THE LAYOUT PLAN SHOULD BE IMMEDIATELY REPORTED TO OWNER'S REPRESENTATIVE.
- NORTHINGS AND EASTINGS ON THE PLAN HAVE BEEN TRUNCATED. NORTHINGS: ADD 410,000 ; EASTINGS: ADD 13,350.000

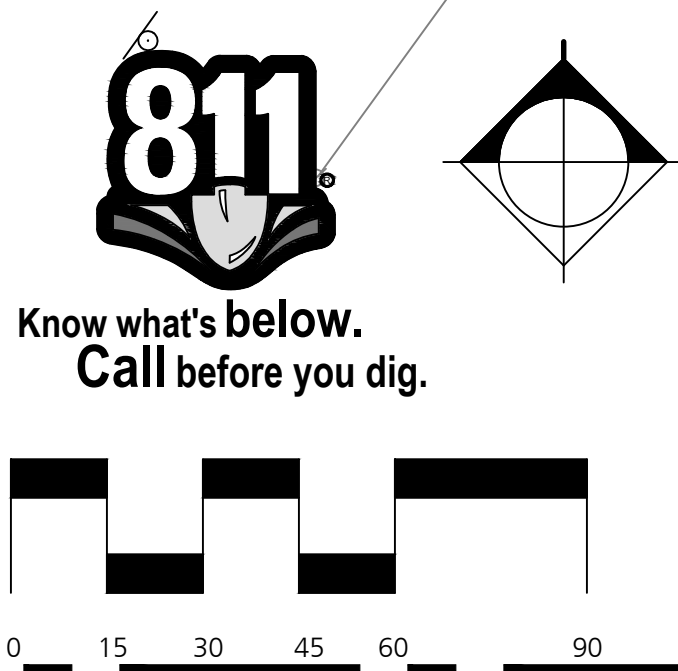
LAYOUT & MATERIALS LEGEND

	PARCEL LINE
	RIGHT-OF-WAY LINE
	LIMIT OF WORK LINE
	ROAD OR WALKWAY CENTERLINE
	PR CONCRETE CURB & GUTTER
	CONCRETE SIDEWALK WITH INTEGRAL CURB
	S.D. CONCRETE PAVEMENT
	H.D. CONCRETE PAVEMENT
	BITUMINOUS PAVING - PEDESTRIAN PATHWAY
	BITUMINOUS PAVING - STANDARD DUTY (SERVICE ROAD)
	AGGREGATE PAVEMENT
	BOARDWALK

ROAD CURVE TABLES

Curve #	Radius	Length	Chord Direction	Start Point	End Point
C1	155	75.47	S76° 25' 03.56° E	(13356668.5202,417793.2973)	(13356741.1606,417775.7474)
C2	145	214.22	S48° 11' 11.55° E	(13356848.2293,417776.4334)	(13356993.7631,417646.2496)
C3	1199	130.52	S08° 58' 38.54° E	(13356993.7631,417646.2496)	(13357014.1202,417517.3904)
C4	1199	43.23	S13° 07' 46.71° E	(13357014.1202,417517.3904)	(13357023.9392,417475.2946)
C5	77	99.45	S22° 50' 34.96° W	(13357023.9392,417475.2946)	(13356987.9591,417389.8810)
C6	138	89.71	S41° 13' 16.46° W	(13356944.5478,417364.6601)	(13356886.4671,417298.3646)
C7	212	110.56	S37° 32' 16.73° W	(13356875.6602,417272.4002)	(13356809.0589,417185.7227)
C8	250	118.68	S38° 52' 40.05° W	(13356809.0589,417185.7227)	(13356735.2631,417094.1940)
C9	250	190.82	S03° 24' 42.55° W	(13356735.2631,417094.1940)	(13356724.1809,416908.3072)
C10	200	165.54	S05° 15' 22.66° W	(13356774.4613,416757.6327)	(13356759.7236,416597.4361)
C11	240	251.95	S58° 07' 35.06° W	(13356753.0895,416585.4536)	(13356548.8122,416458.4328)
C12	90	35.37	S22° 53' 56.74° W	(13356727.7548,417836.4942)	(13356714.0811,417804.1227)
C13	200	19.10	S36° 53' 36.82° W	(13356871.0328,418046.0375)	(13356859.5684,418030.7648)

Line #	Length	Direction	Start Point	End Point
L1	8.91	S62° 28' 05.56° E	(13356660.6157,417797.4177)	(13356668.5202,417793.2973)
L2	107.07	N89° 37' 58.43° E	(13356741.1606,417775.7474)	(13356848.2293,417776.4334)
L3	50.21	S59° 50' 40.15° W	(13356987.9591,417389.8810)	(13356944.5478,417364.6601)
L4	28.12	S22° 35' 52.77° W	(13356886.4671,417298.3646)	(13356875.6602,417272.4002)
L5	158.84	S18° 27' 14.33° E	(13356724.1809,416908.3072)	(13356774.4613,416757.6327)
L6	13.70	S28° 58' 15.58° W	(13356759.7236,416597.4361)	(13356753.0895,416585.4536)
L7	110.86	S88° 11' 36.28° W	(13356548.8122,416458.4328)	(13356438.0038,416454.9377)
L20	78.04	S39° 37' 48.10° W	(13356920.8107,418106.1445)	(13356871.0328,418046.0375)
L21	234.77	S34° 09' 25.55° W	(13356859.5684,418030.7648)	(13356727.7548,417836.4942)
L22	25.72	S11° 38' 27.93° W	(13356714.0811,417804.1227)	(13356708.8915,417778.9325)



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Project Title

White Lake Twp.
Stanley Park
Phase 1 Implementation
MDNR Project No. 26-01868

White Lake Township, MI

Sheet Title

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Quality Control

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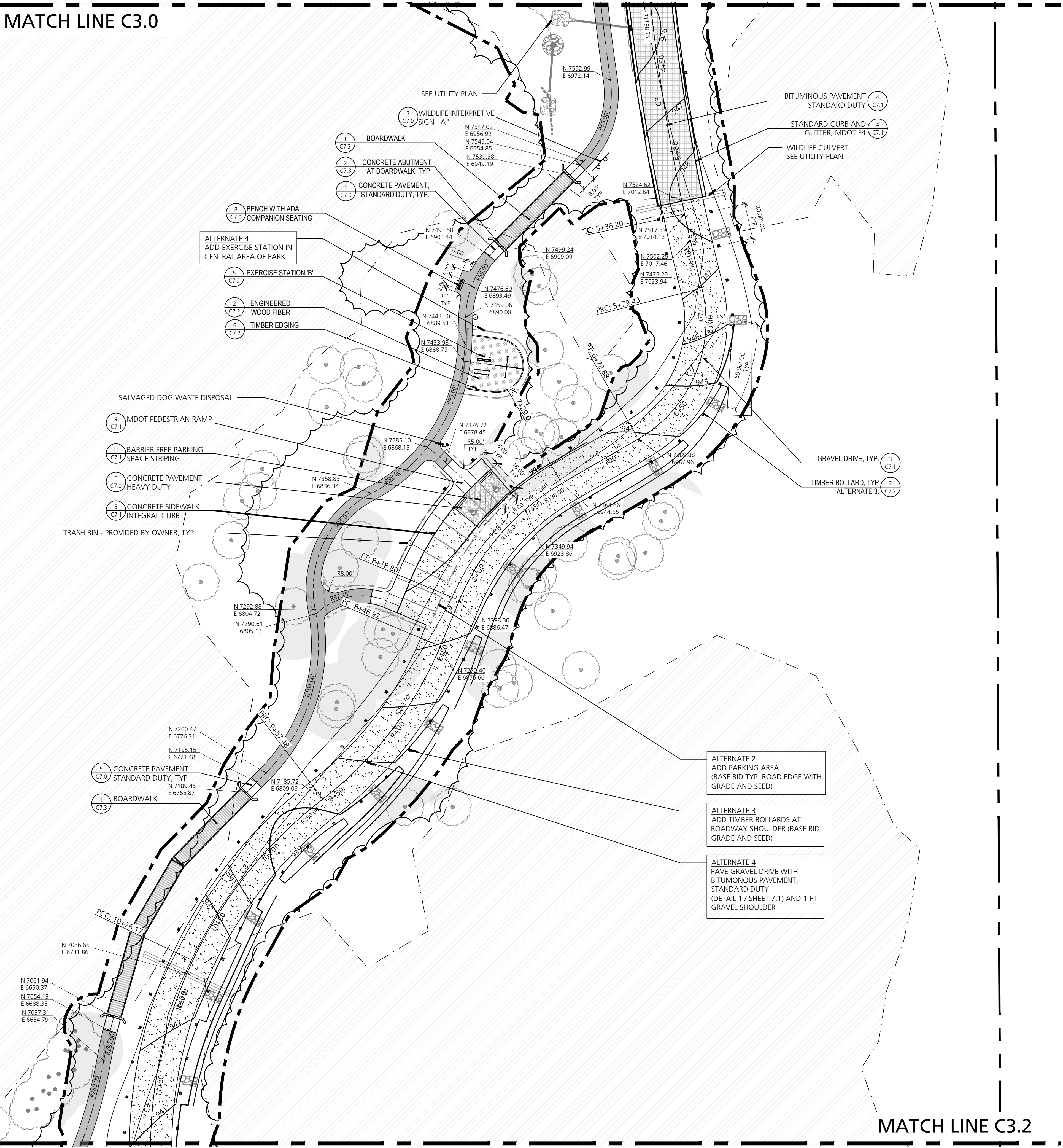
Project Number

2022024

Sheet Number

C3.0 LAYOUT & MATERIALS
PLAN - AREA A

MATCH LINE C3.0



MATCH LINE C2.1



B R I

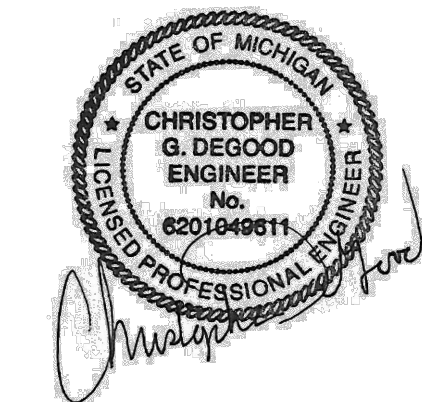
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C3.2 LAYOUT & MATERIALS
PLAN - AREA C



1. CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION ALL WORK COMPLETED IN CONFORMANCE WITH CURRENT ADA STANDARDS.
2. PROPOSED CONTOUR LINES AND SPOT ELEVATIONS REFLECT FINISH GRADES. HOLD DOWN SUBGRADE ELEVATIONS ACCORDINGLY. ADJUST RIM ELEVATIONS OF ALL UTILITIES AFFEYED BY WORK IN THIS CONTRACT. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE ON THE SITE. ANY AREA THAT APPEARS TO NOT PROPERLY DRAIN SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE LANDSCAPE ARCHITECT/ENGINEER FOR RESOLUTION.
3. ALL SIDEWALKS AND PATHWAYS SHALL HAVE A CROSS SLOPE OF 1.5 MAX, UNLESS OTHERWISE NOTED.
4. FOR ROAD PROFILES, SEE SHEETS C4.3 AND C4.4.

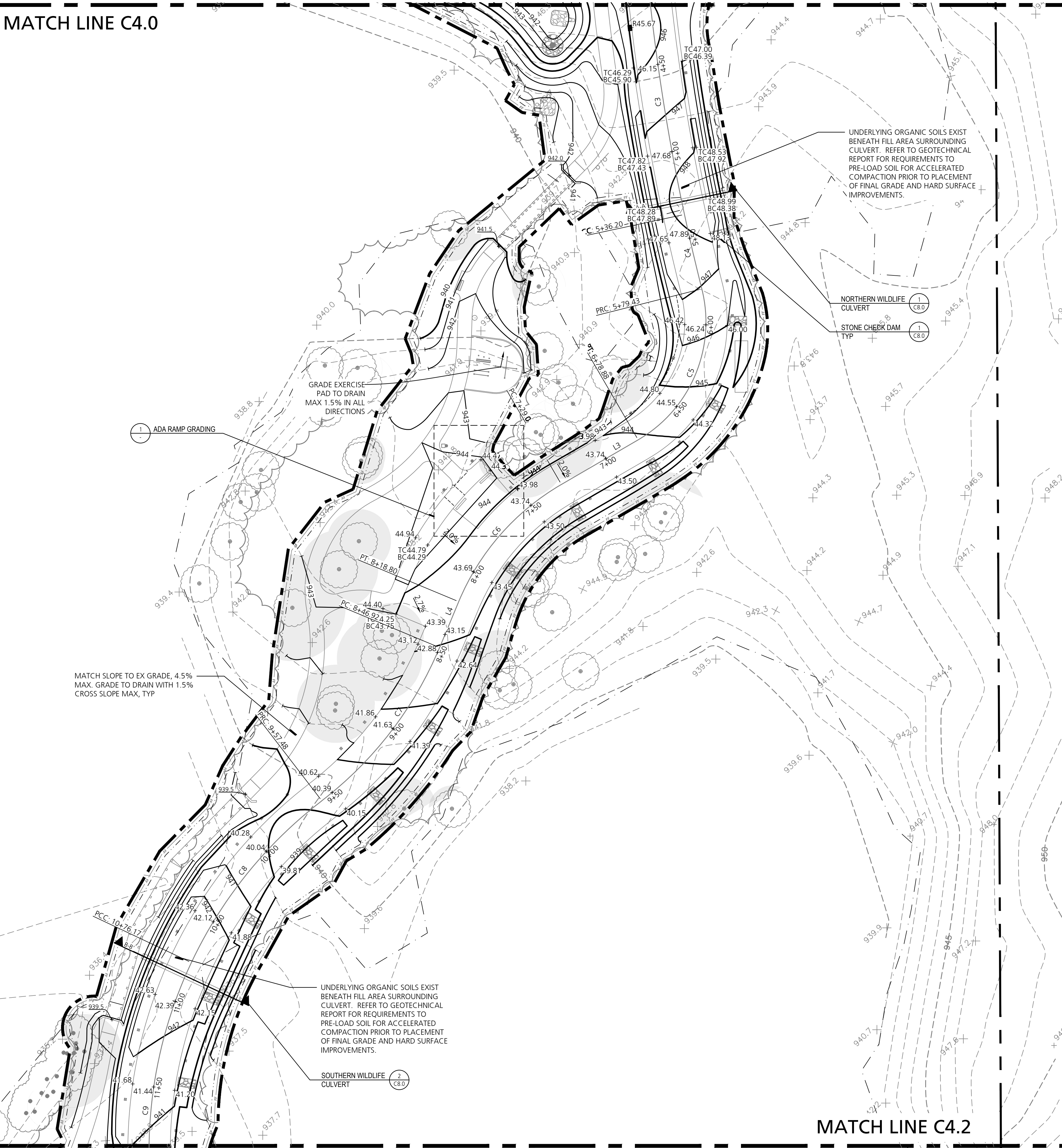
1. EXCESS SOILS GENERATED FROM PROJECT EXCAVATION SHALL BE PLACED AND STOCKPILED IN LOCATIONS TO BE IDENTIFIED BY THE OWNER IN THE ADJACENT FARM FIELD IMMEDIATELY NORTHWEST OF THE PROJECT SITE.
2. CONTRACTOR SHALL PROVIDE SESC CONTROLS AS REQUIRED BY THE LOCAL AUTHORITIES HAVING JURISDICTION INCLUDING SILT FENCE AND STOCKPILE STABILIZATION SEEDING.
3. CONTRACTOR SHALL STRIP AND STOCKPILE FARM FIELD TOPSOIL PRIOR TO PLACEMENT OF EXCESS SOILS.
4. SEPARATE EXCESS SOILS ACCORDING TO SUITABLE FILL MATERIAL, TOPSOIL, AND HIGH ORGANIC MATERIAL (MUCK, MARLE, ETC.). PLACE IN LOCATIONS IDENTIFIED BY OWNER AFTER STRIPPING FARM FIELD TOPSOIL. PLACE EXCESS SOILS CONFORMING TO LIFT THICKNESSES AND COMPACTION REQUIREMENTS OF PROJECT SPECIFICATIONS.

+ ME	MATCH EX GRADE		PARCEL LINE
+ 80.84	PR SPOT GRADE (+900)		RIGHT-OF-WAY LINE
+ TC 77.52	PR TOP OF CURB GRADE (+900)		LIMIT OF WORK LINE
+ BC 77.02	PR BOTTOM OF CURB GRADE (+900)		LIMIT OF GRADING
+ RIM 89.00	PR RIM ELEVATION (+900)		EX MINOR CONTOUR
+ INV 73.25	PR INVERT ELEVATION (+900)		EX MAJOR CONTOUR
+ 196.87	EX SPOT GRADE		PR MINOR CONTOUR
			PR MAJOR CONTOUR
			SLOPE BREAK
			TREE PROTECTION FENCE
			FILTER FABRIC FENCE



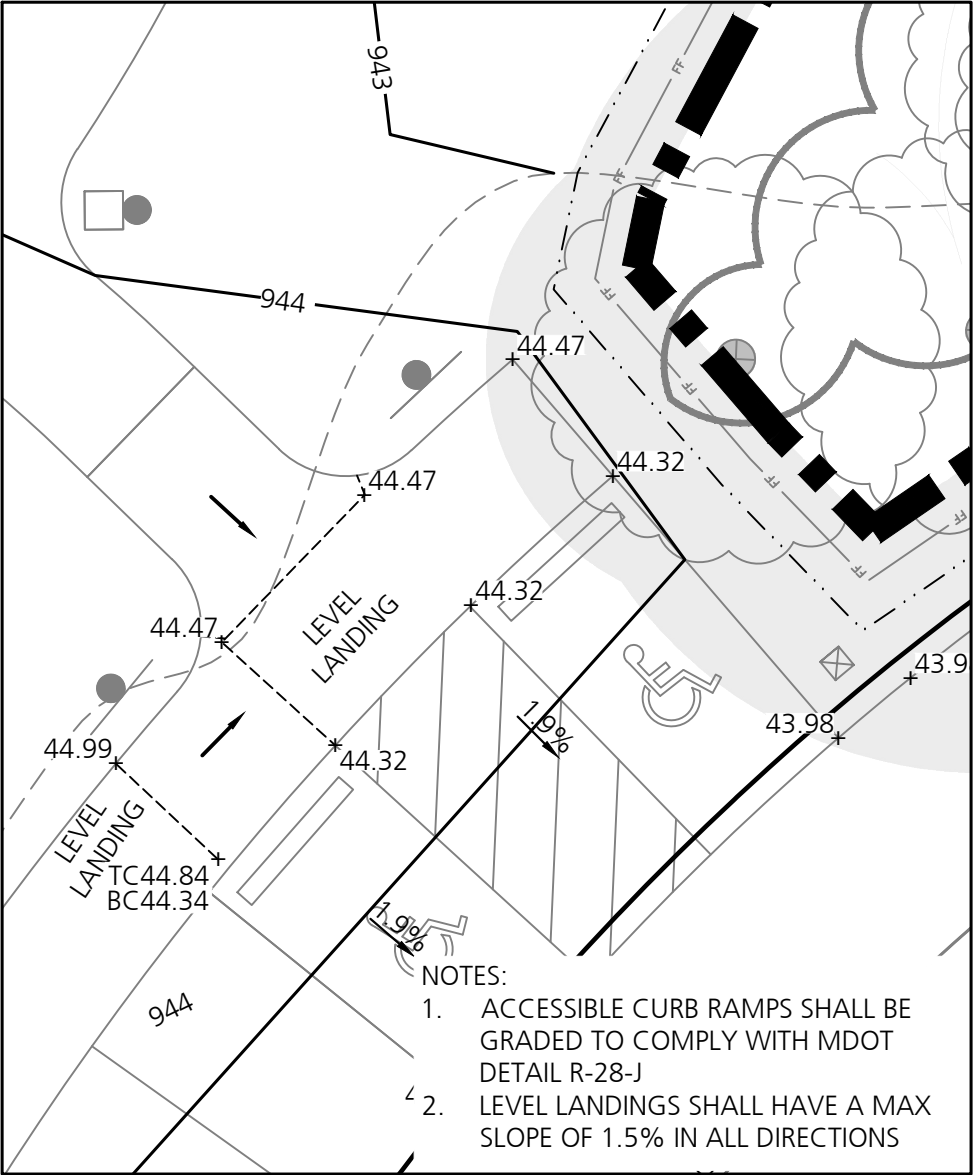
C4.0 GRADING PLAN - AREA A

MATCH LINE C4.0



GRADING PLAN NOTES & LEGENDS

SEE GRADING PLAN NOTES AND LEGENDS SEE SHEET C4.0



1 ADA RAMP GRADING
1"= 10FEET

B R i

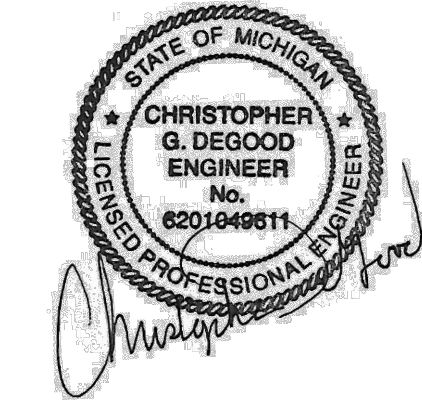
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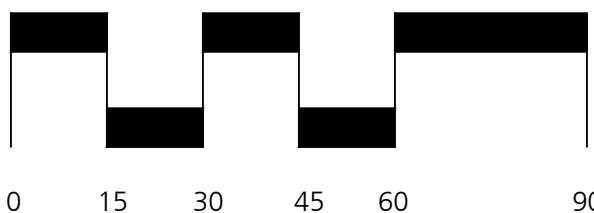
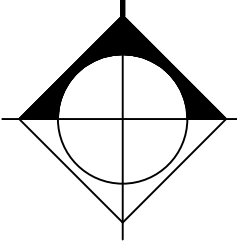
Approved: BB

Project Number

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Sheet Number

C4.1 GRADING PLAN - AREA B





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White Lake Twp.
Stanley Park
Phase 1 Implementation
MDNR Project No. 26-01868
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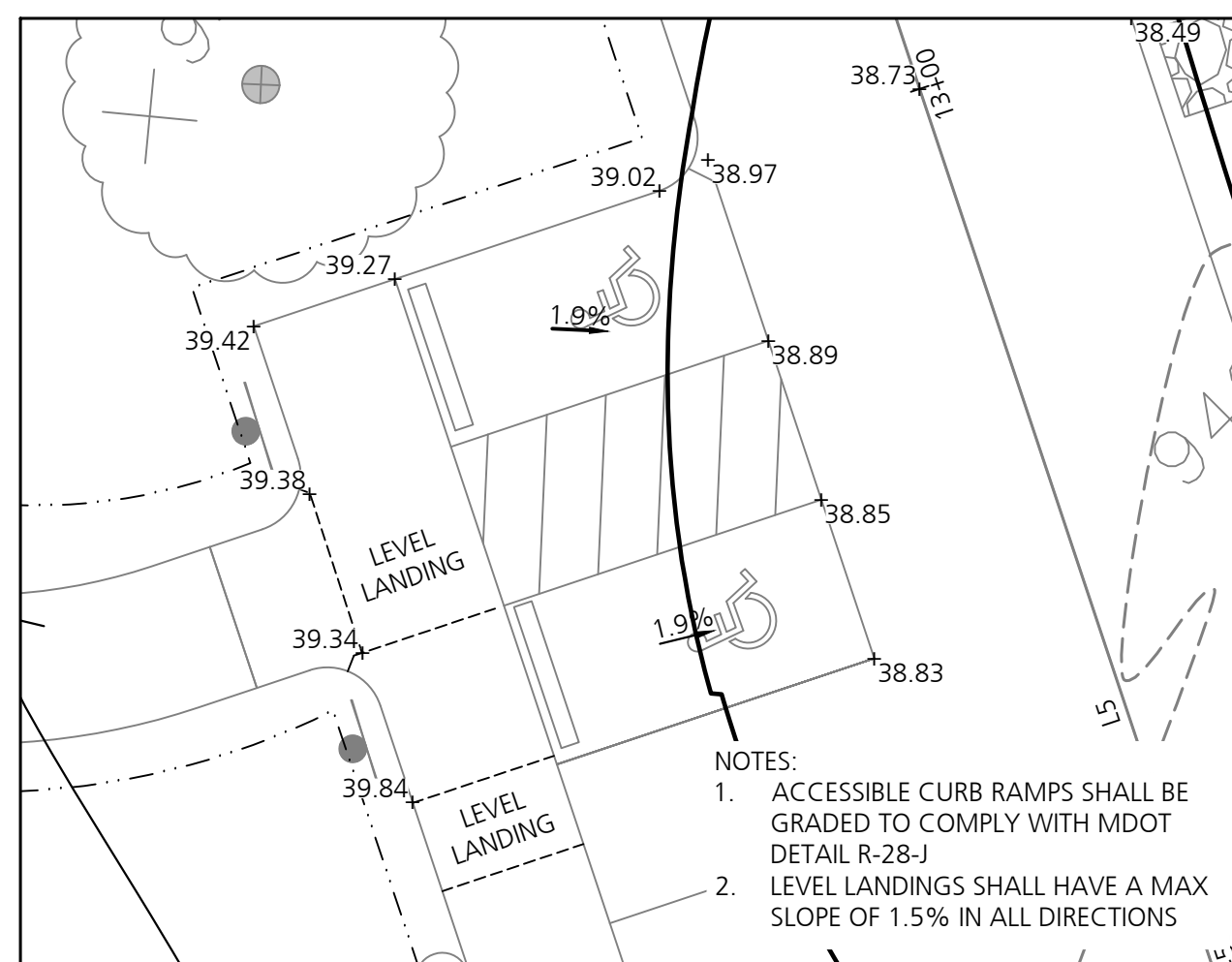
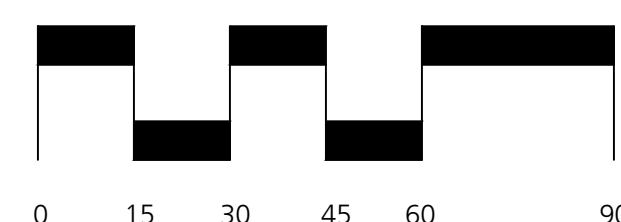
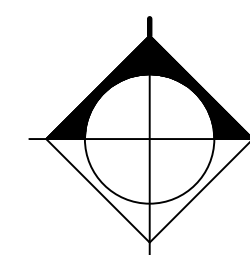
2022024

Sheet Number

C4.2 GRADING PLAN - AREA C

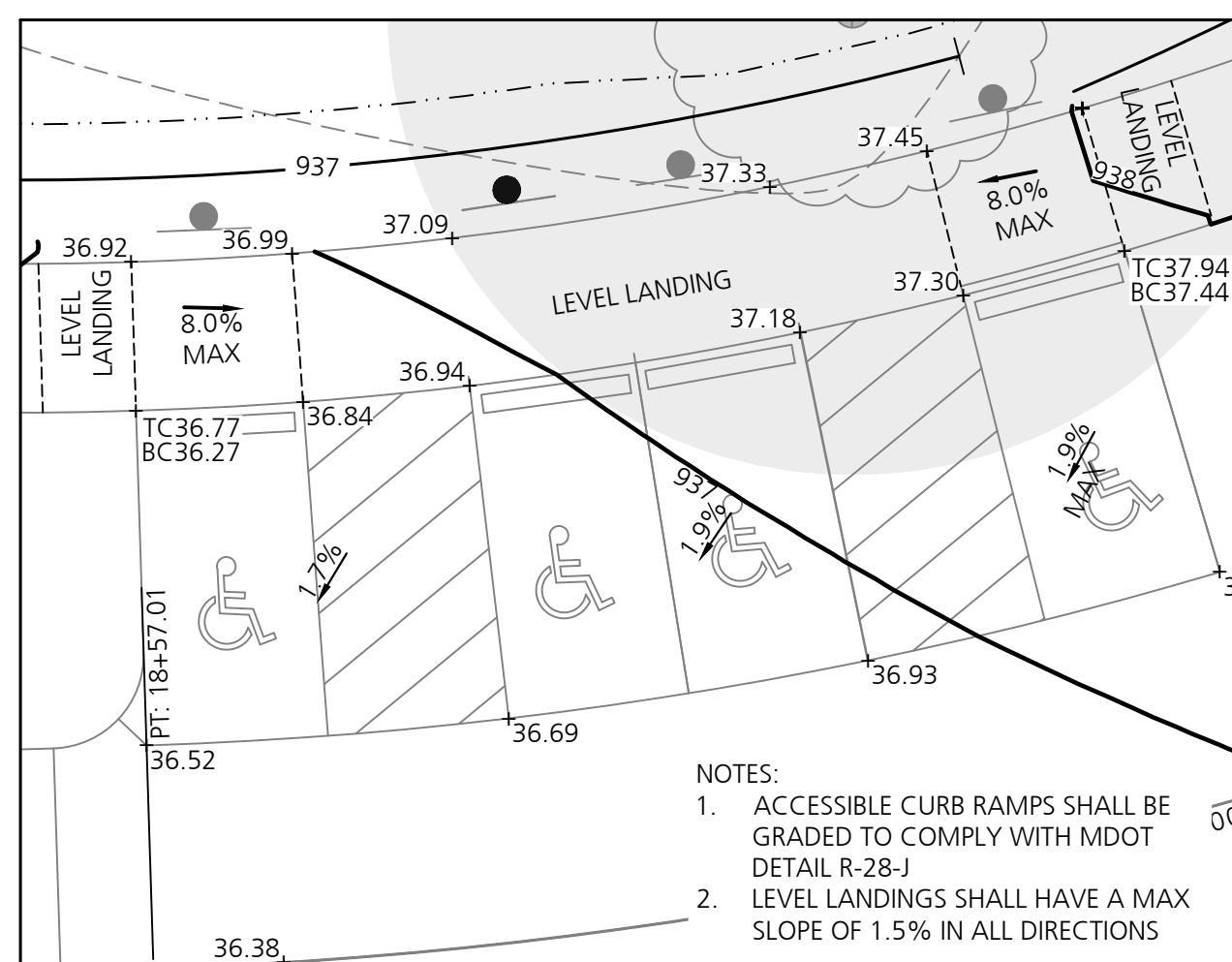


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1 ADA RAMP GRADING

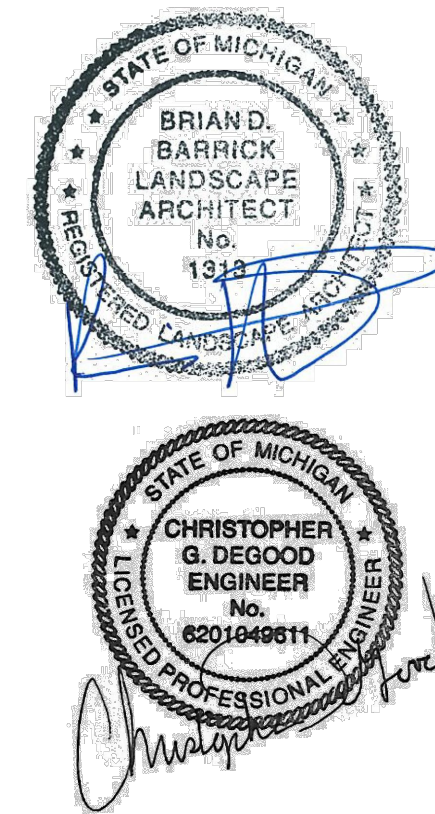
1" = 10 FEET



2 ADA RAMP GRADING

1" = 10 FEET

BRENDLE LAKE



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White Lake Twp.
Stanley Park
Phase 1 Implementation
MDNR Project No. 26-01868
White Lake Township, MI

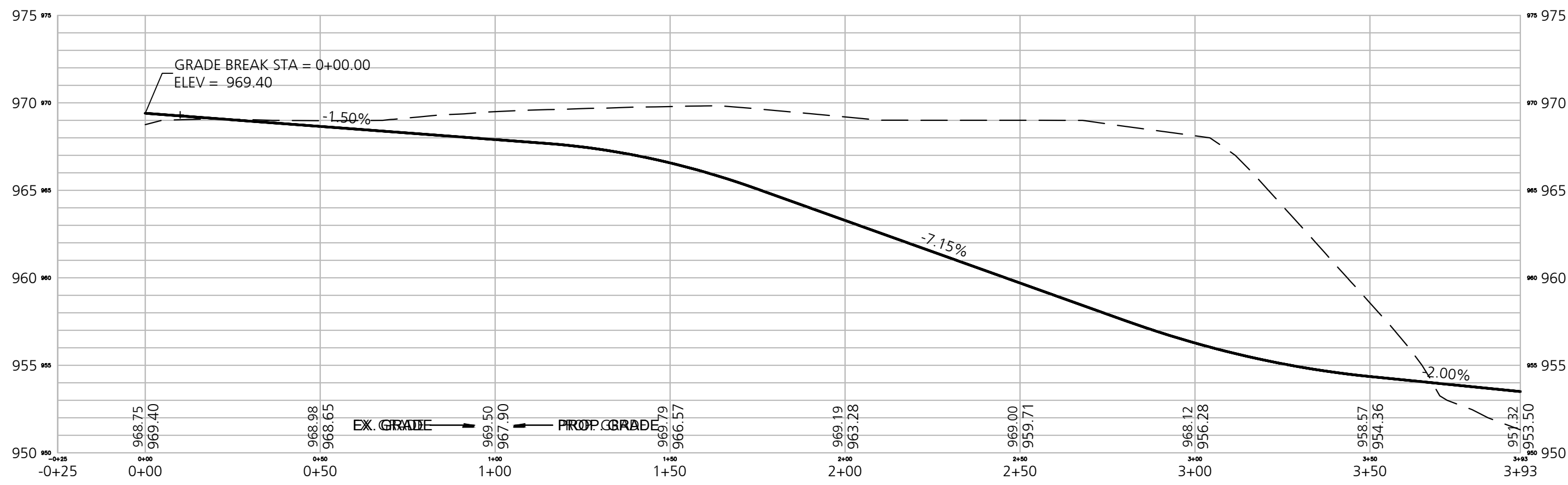
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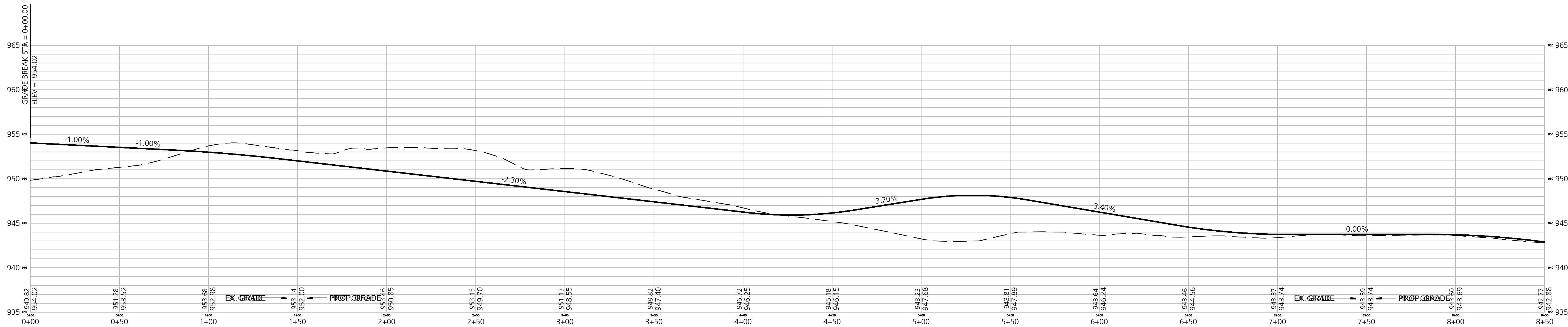
Approved: BB

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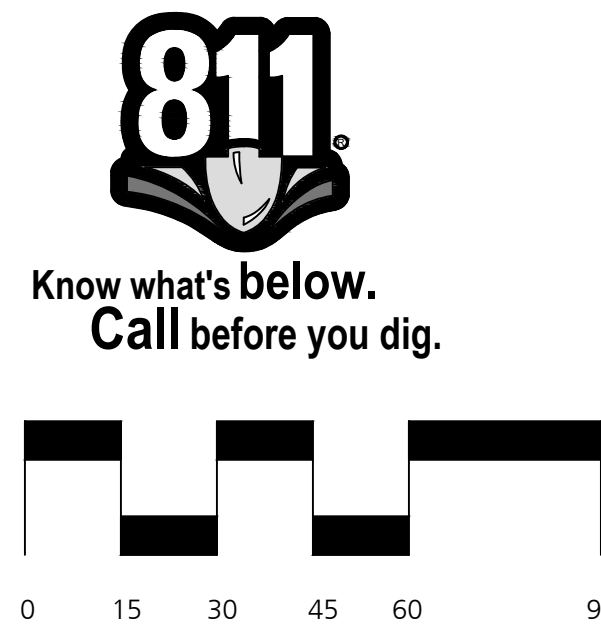
1 Entrance Road STA -0+25 to 3+93

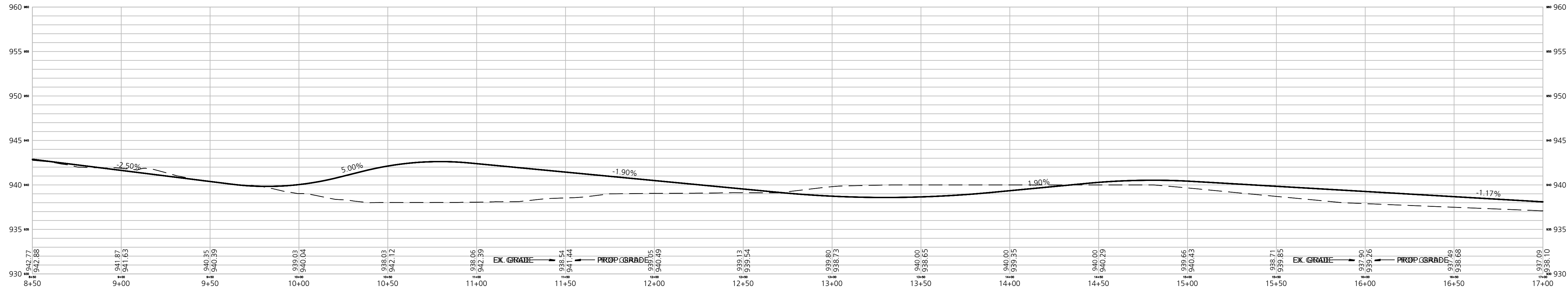
HORIZONTAL SCALE: 1" = 30'



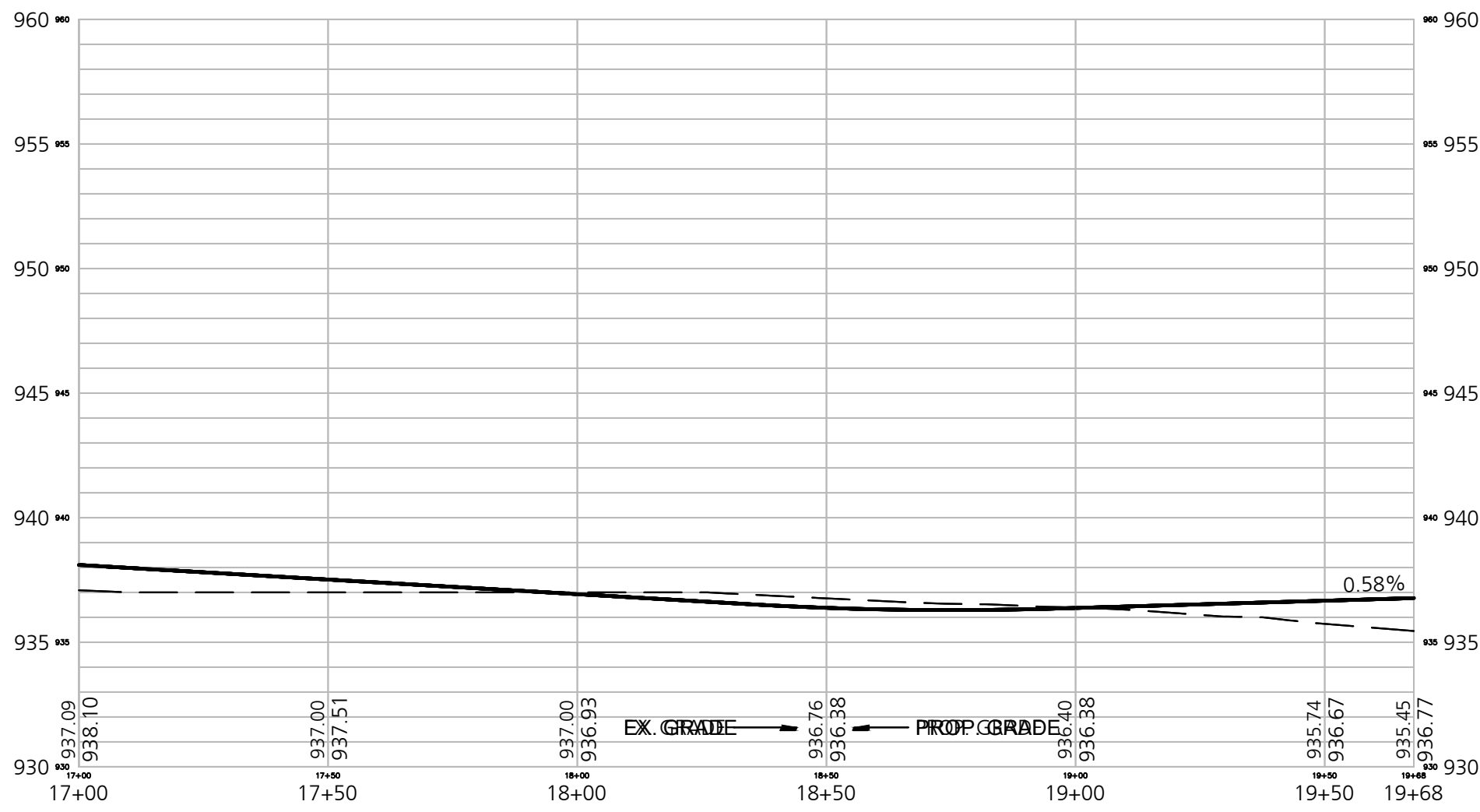
2 Main Drive STA 0+00 to 8+50

HORIZONTAL SCALE: 1" = 30'





1 Main Drive STA 8+50 to 17+00
HORIZONTAL SCALE: 1" = 30'

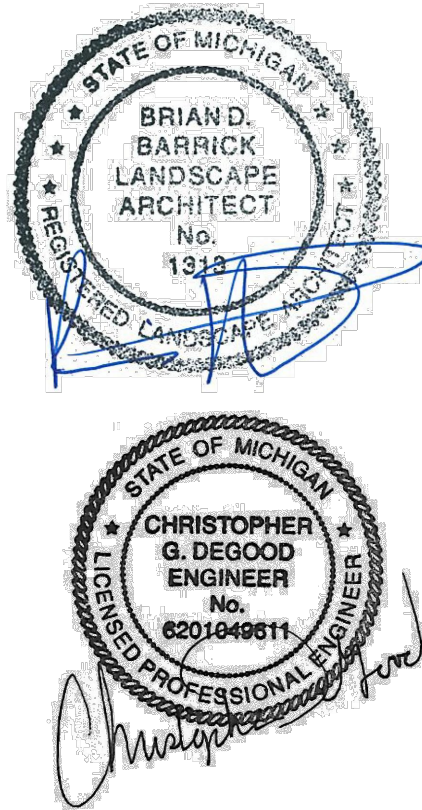


2 Main Drive STA 17+00 TO 19+68
HORIZONTAL SCALE: 1" = 30'

811
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0 15 30 45 60 90

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Stanley Park
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Quality Control

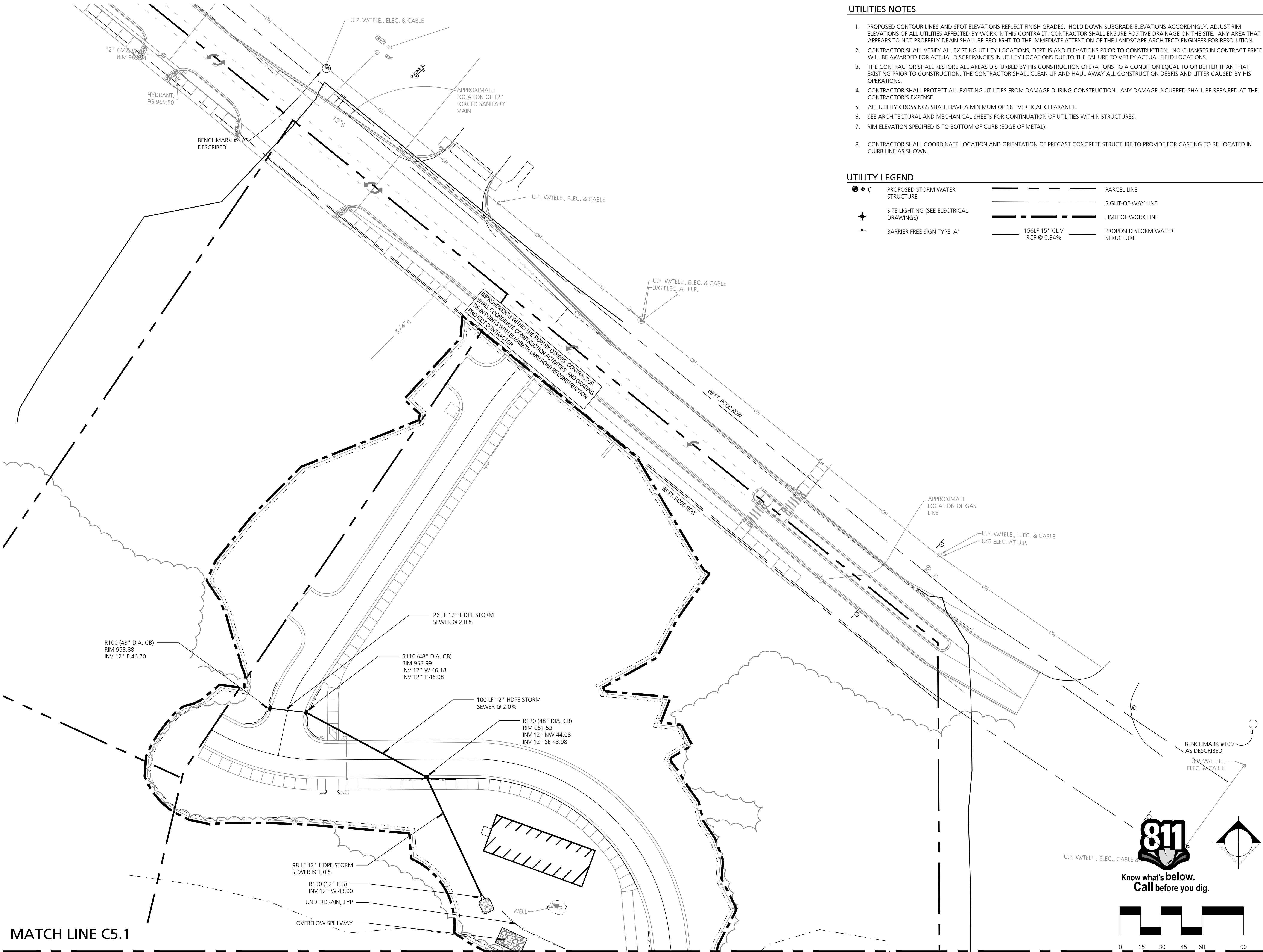
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Project Number

2022024

Sheet Number

C4.4 ROAD PROFILE (2)



UTILITIES NOTES

1. PROPOSED CONTOUR LINES AND SPOT ELEVATIONS REFLECT FINISH GRADES. HOLD DOWN SUBGRADE ELEVATIONS ACCORDINGLY. ADJUST RIM ELEVATIONS OF ALL UTILITIES AFFECTED BY WORK IN THIS CONTRACT. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE ON THE SITE. ANY AREA THAT APPEARS TO NOT PROPERLY DRAIN SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE LANDSCAPE ARCHITECT/ ENGINEER FOR RESOLUTION.
2. CONTRACTOR SHALL VERIFY ALL EXISTING UTILITY LOCATIONS, DEPTHS AND ELEVATIONS PRIOR TO CONSTRUCTION. NO CHANGES IN CONTRACT PRICE WILL BE AWARDED FOR ACTUAL DISCREPANCIES IN UTILITY LOCATIONS DUE TO THE FAILURE TO VERIFY ACTUAL FIELD LOCATIONS.
3. THE CONTRACTOR SHALL RESTORE ALL AREAS DISTURBED BY HIS CONSTRUCTION OPERATIONS TO A CONDITION EQUAL TO OR BETTER THAN THAT EXISTING PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CLEAN UP AND HAUL AWAY ALL CONSTRUCTION DEBRIS AND LITTER CAUSED BY HIS OPERATIONS.
4. CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES FROM DAMAGE DURING CONSTRUCTION. ANY DAMAGE INCURRED SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
5. ALL UTILITY CROSSINGS SHALL HAVE A MINIMUM OF 18" VERTICAL CLEARANCE.
6. SEE ARCHITECTURAL AND MECHANICAL SHEETS FOR CONTINUATION OF UTILITIES WITHIN STRUCTURES.
7. RIM ELEVATION SPECIFIED IS TO BOTTOM OF CURB (EDGE OF METAL).
8. CONTRACTOR SHALL COORDINATE LOCATION AND ORIENTATION OF PRECAST CONCRETE STRUCTURE TO PROVIDE FOR CASTING TO BE LOCATED IN CURB LINE AS SHOWN.

UTILITY LEGEND

● ● ●	PROPOSED STORM WATER STRUCTURE	---	PARCEL LINE
✦	SITE LIGHTING (SEE ELECTRICAL DRAWINGS)	---	RIGHT-OF-WAY LINE
▲	BARRIER FREE SIGN TYPE' A'	---	LIMIT OF WORK LINE
		156LF 15" CLIV RCP @ 0.34%	PROPOSED STORM WATER STRUCTURE

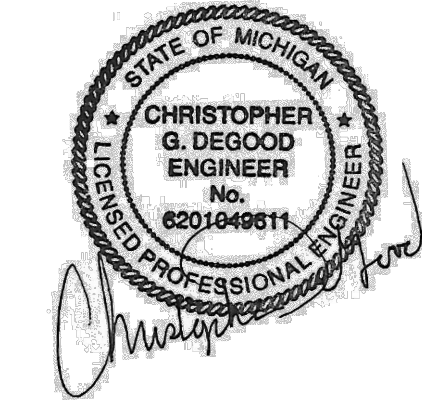
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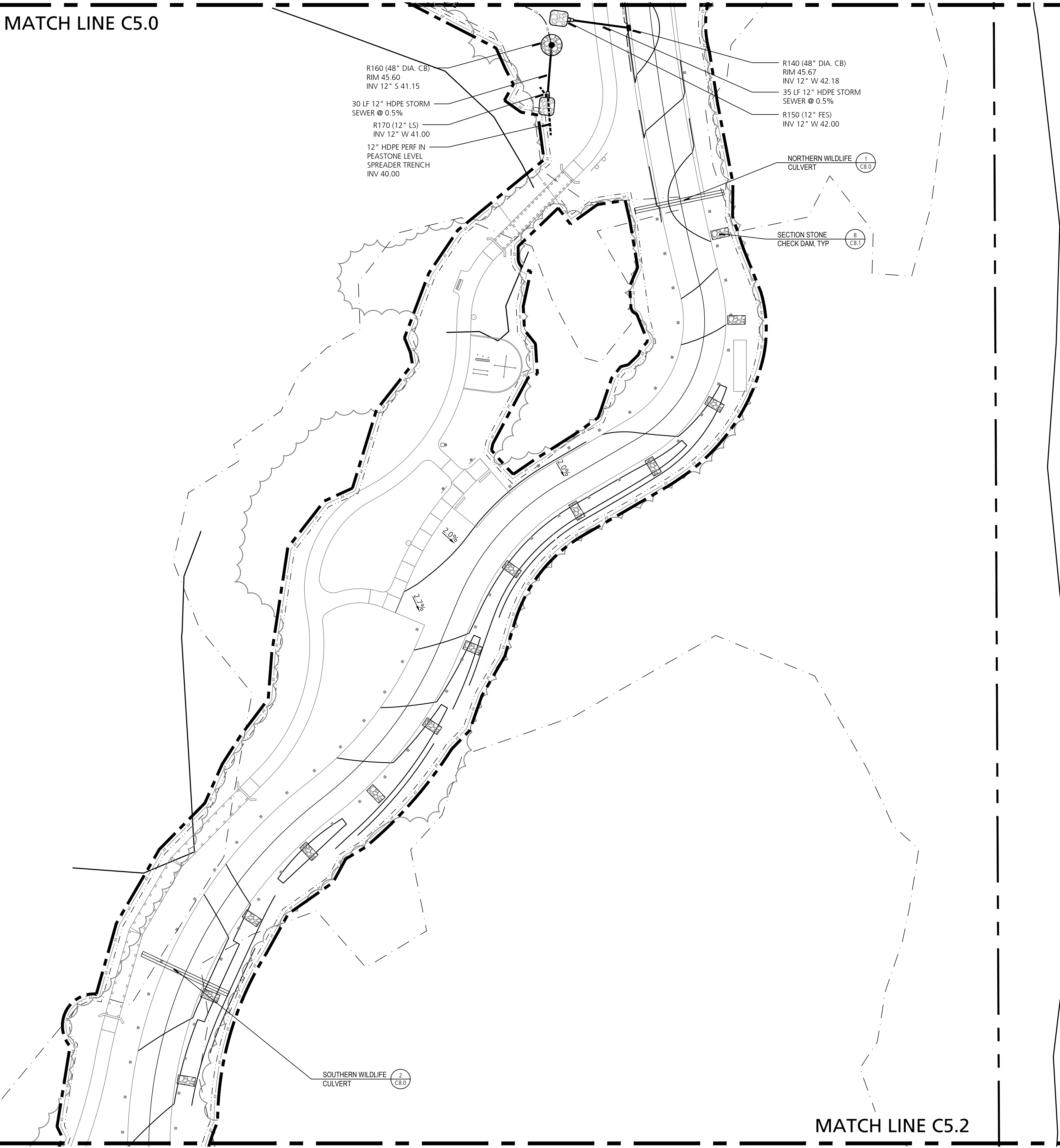
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2022024

Sheet Number

C5.0 UTILITY PLAN - AREA A

MATCH LINE C5.0



MATCH LINE C5.2

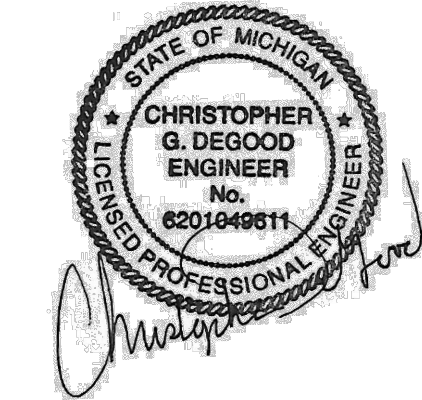
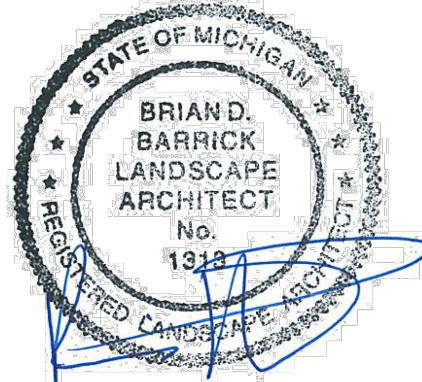
UTILITY PLAN NOTES & LEGENDS

SEE UTILITY PLAN NOTES AND LEGENDS SEE SHEET C4.0

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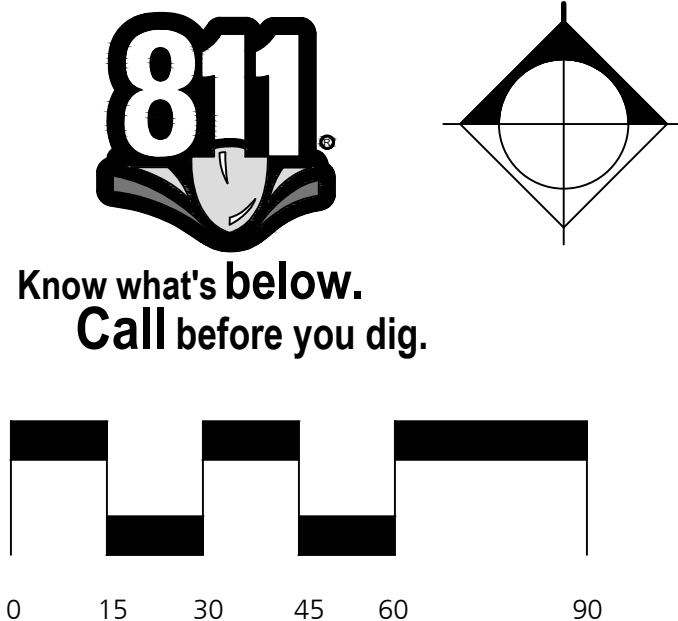
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C5.1 UTILITY PLAN - AREA B



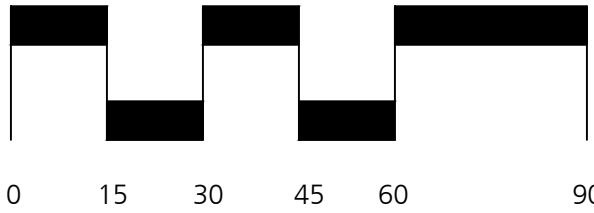
MATCH LINE C5.1



BRENDEL LAKE



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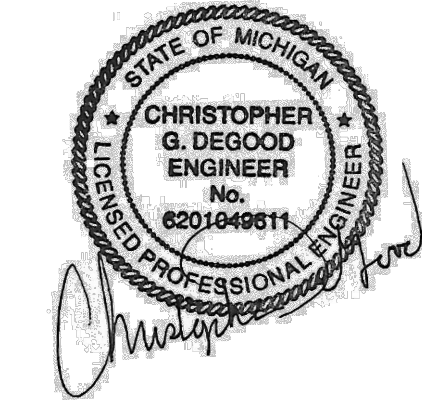
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Sheet Number

C5.2 UTILITY PLAN - AREA C



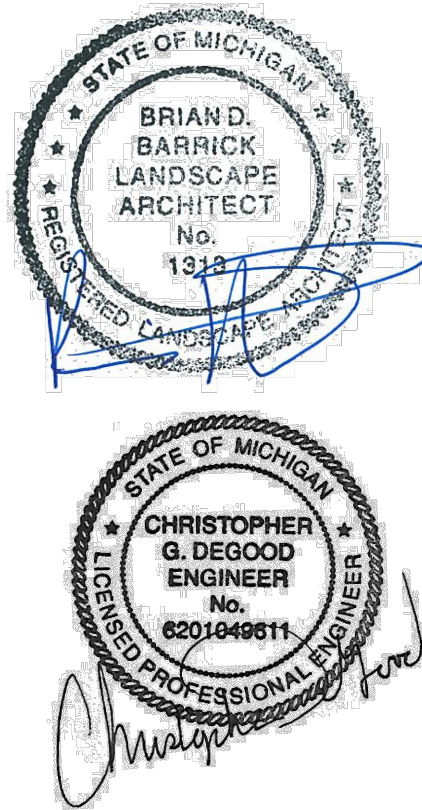
STORMWATER MANAGEMENT LEGEND

- IMPERVIOUS PAVEMENT & BUILDINGS
- PERVIOUS OPEN SPACES
- OVERLAND FLOW LINE
- STORMWATER PIPE FLOW LINE
- LIMIT OF DISTURBANCE

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Planning, Engineering &
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535 West William, Suite 101
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Consultants



Seal

Project Title

White Lake Twp.
Stanley Park
Phase 1 Implementation
MDNR Project No. 26-01868
White Lake Township, MI

Sheet Title

Dates

Dates	Issued for
12.14.2022	DRAFT DESIGN DEVELOPMENT
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06.15.2023	BIDDING

Scale

Quality Control

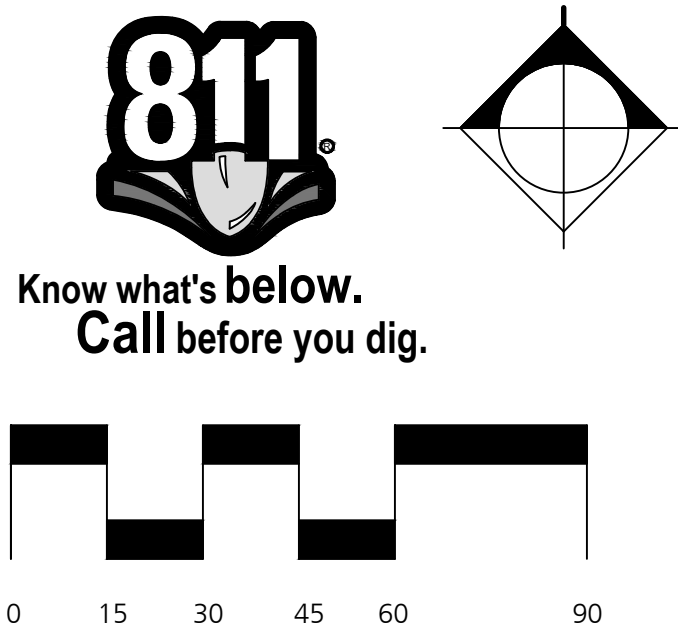
Drawn: MK, LDS
Checked: LDS, BB
Approved: BB

Project Number

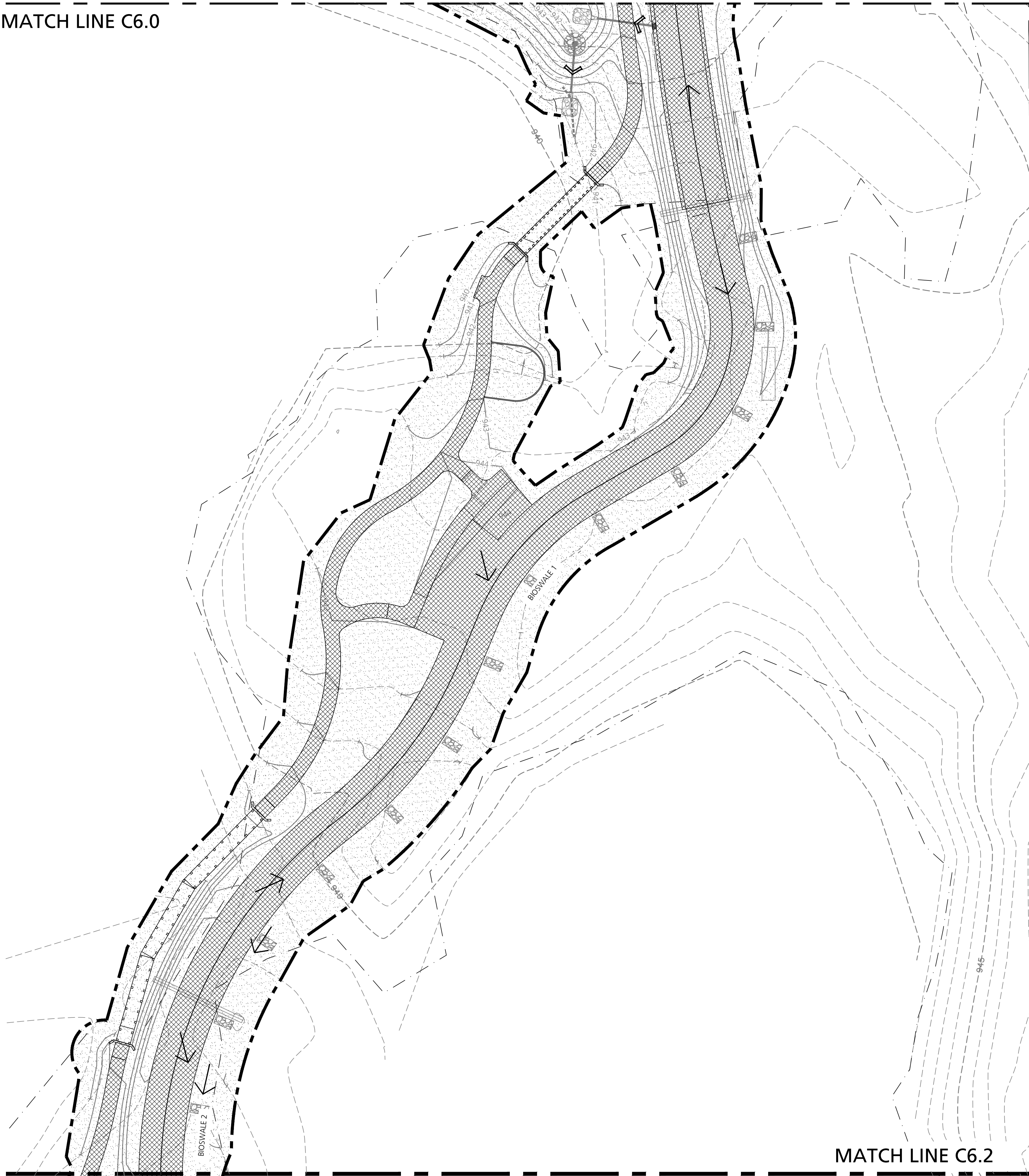
2022024

Sheet Number

C6.0 STORMWATER MANAGEMENT
PLAN - AREA A



MATCH LINE C6.0



STORMWATER SUMMARY:

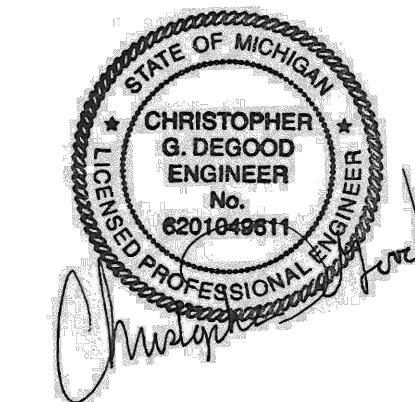
Area	9.68	ac
Prop. Impervious	2.10	ac
Prop. Pervious	7.58	ac
Infiltration Rate		in/hr
Runoff Coefficient, C	0.36	
100-yr peak intensity	13.84	in/hr

THE PROPOSED DESIGN INTENDS TO ELIMINATE CONCENTRATION OF TOTAL SUSPENDED SOLIDS BY MANAGING THE WATER QUALITY VOLUME. THE WATER QUALITY VOLUME WAS CALCULATED USING OAKLAND COUNTY WATER RESOURCES COMMISSIONER 2021 STORMWATER ENGINEERING DESIGN STANDARDS.

$EQU (1) \quad V_{WQ} = 3630 \cdot A \cdot C$

Stormwater Management BMP	Required Water Quality Volume (cft)	Provided Water Quality Volume (cft)
Pond 1	2,711	3,950
Pond 2	2,294	4,075

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Scale

Quality Control

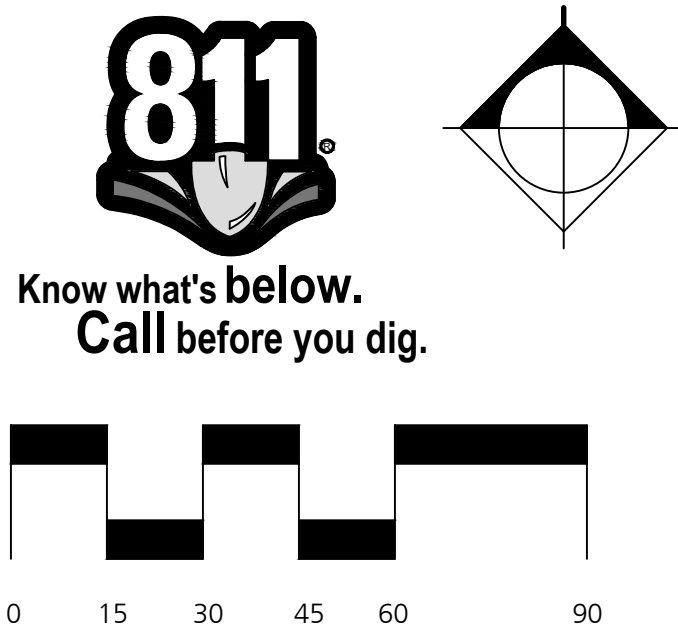
Drawn: MK, LDS
Checked: LDS, BB
Approved: BB

Project Number

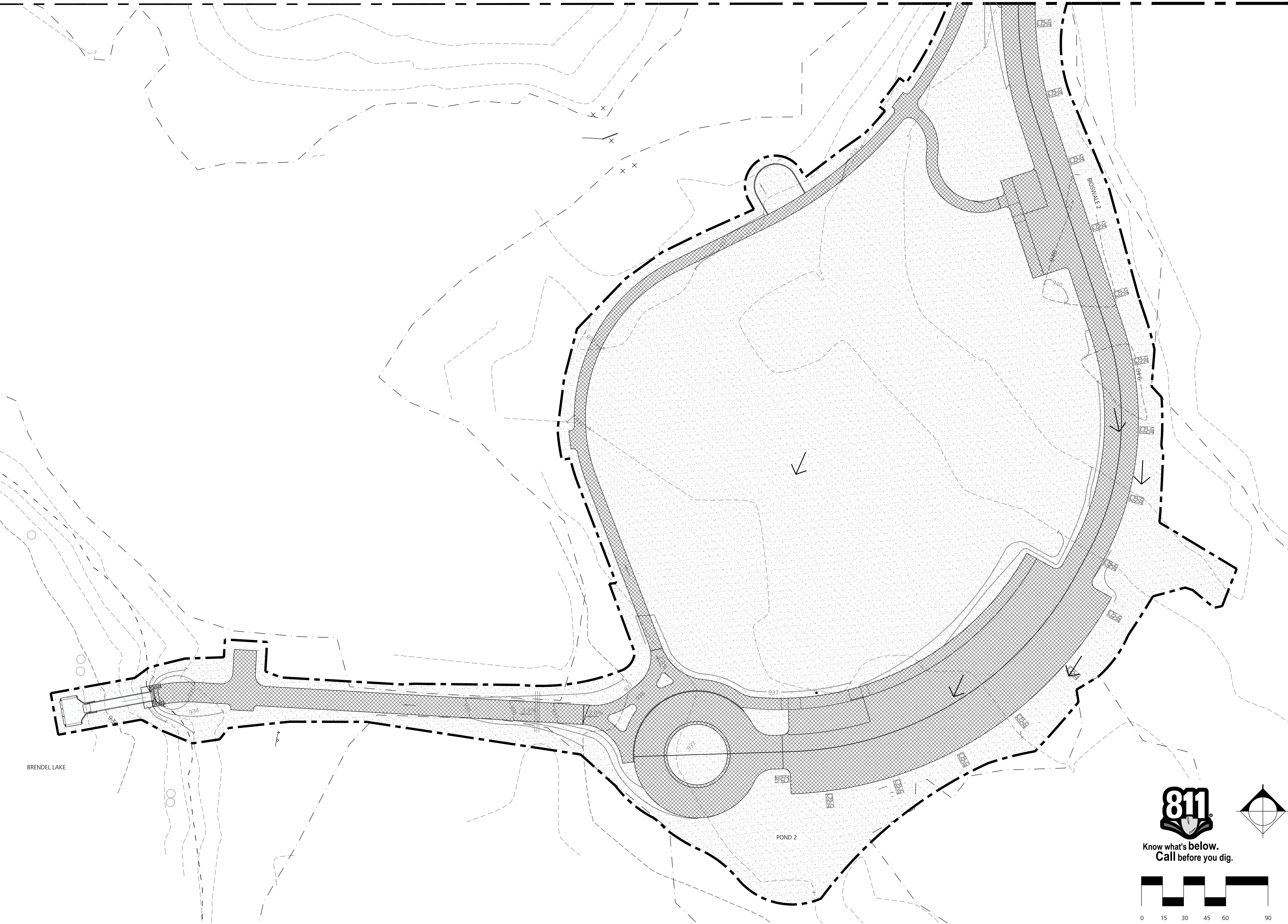
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Sheet Number

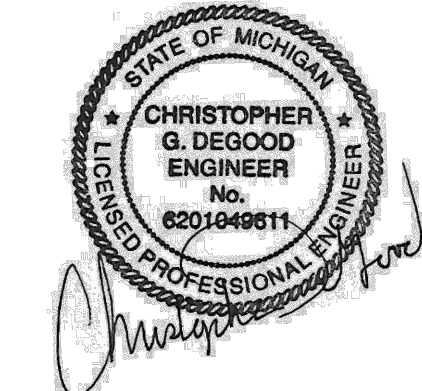
C6.1 STORMWATER MANAGEMENT
PLAN - AREA B



MATCH LINE C6.1



Consultants



Seal

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Scale

Quality Control

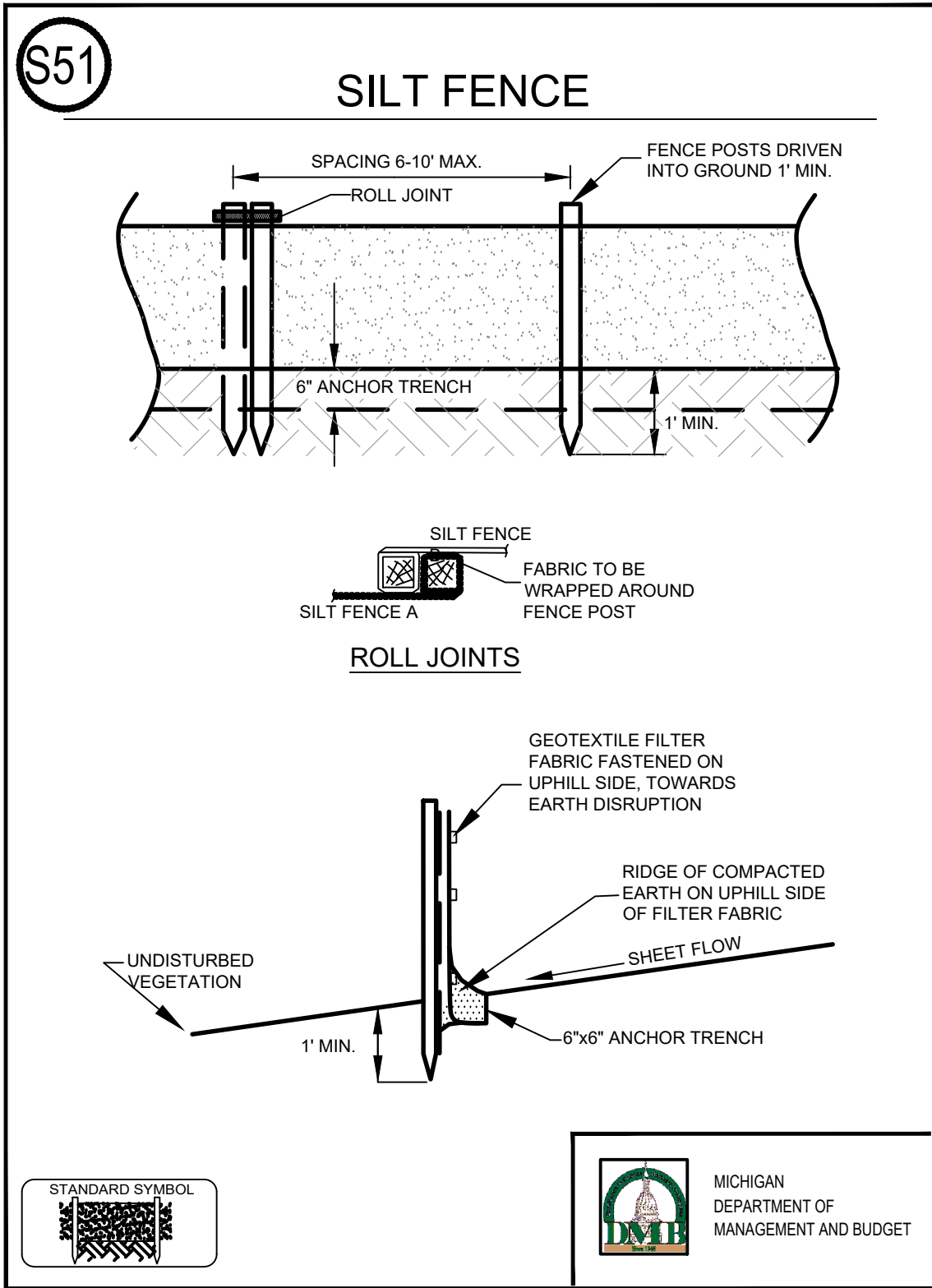
Drawn: MK, LDS
Checked: LDS, BB
Approved: BB

Project Number

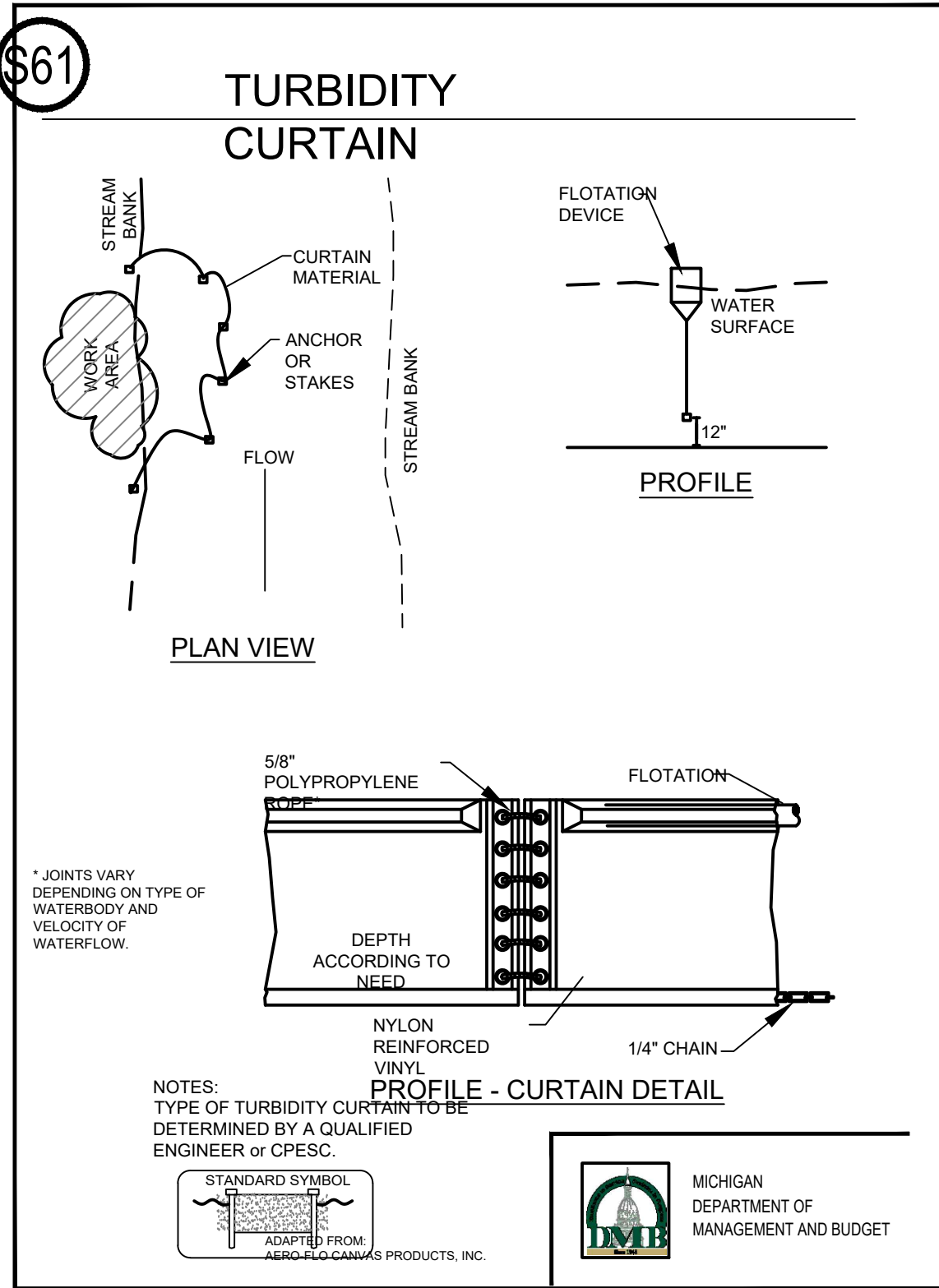
2022024

Sheet Number

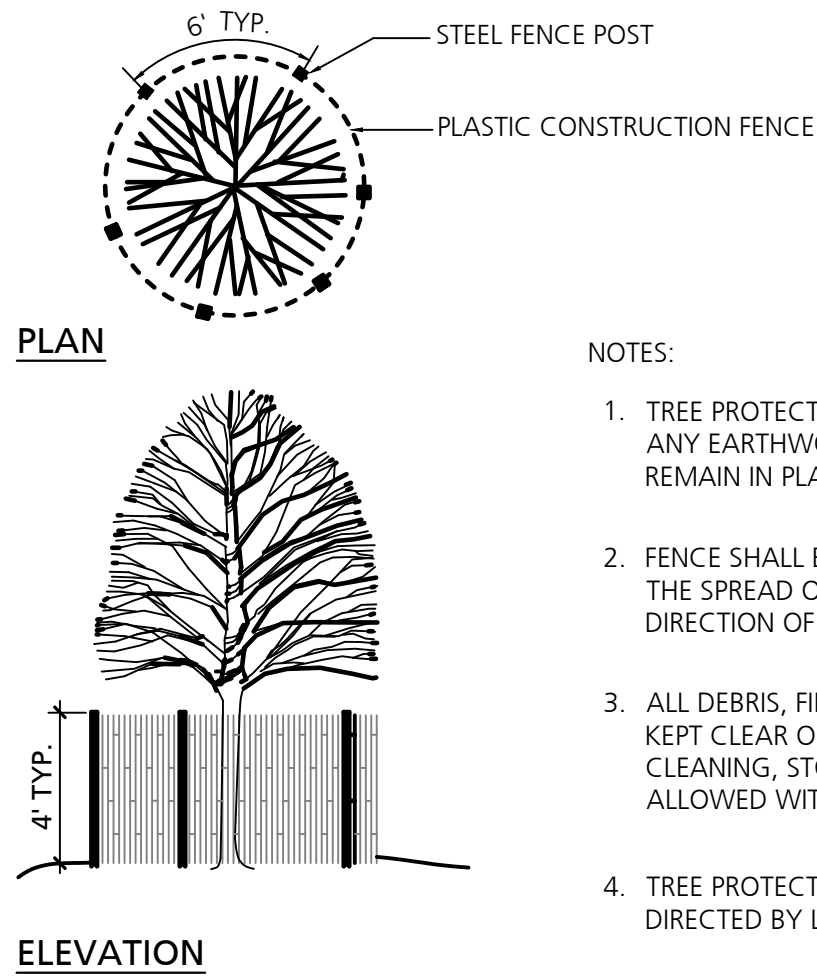
C6.2 STORMWATER MANAGEMENT
PLAN - AREA C



1 Filter Fabric/Wildlife Protection Fence: MDTMB SESC Detail
NO SCALE

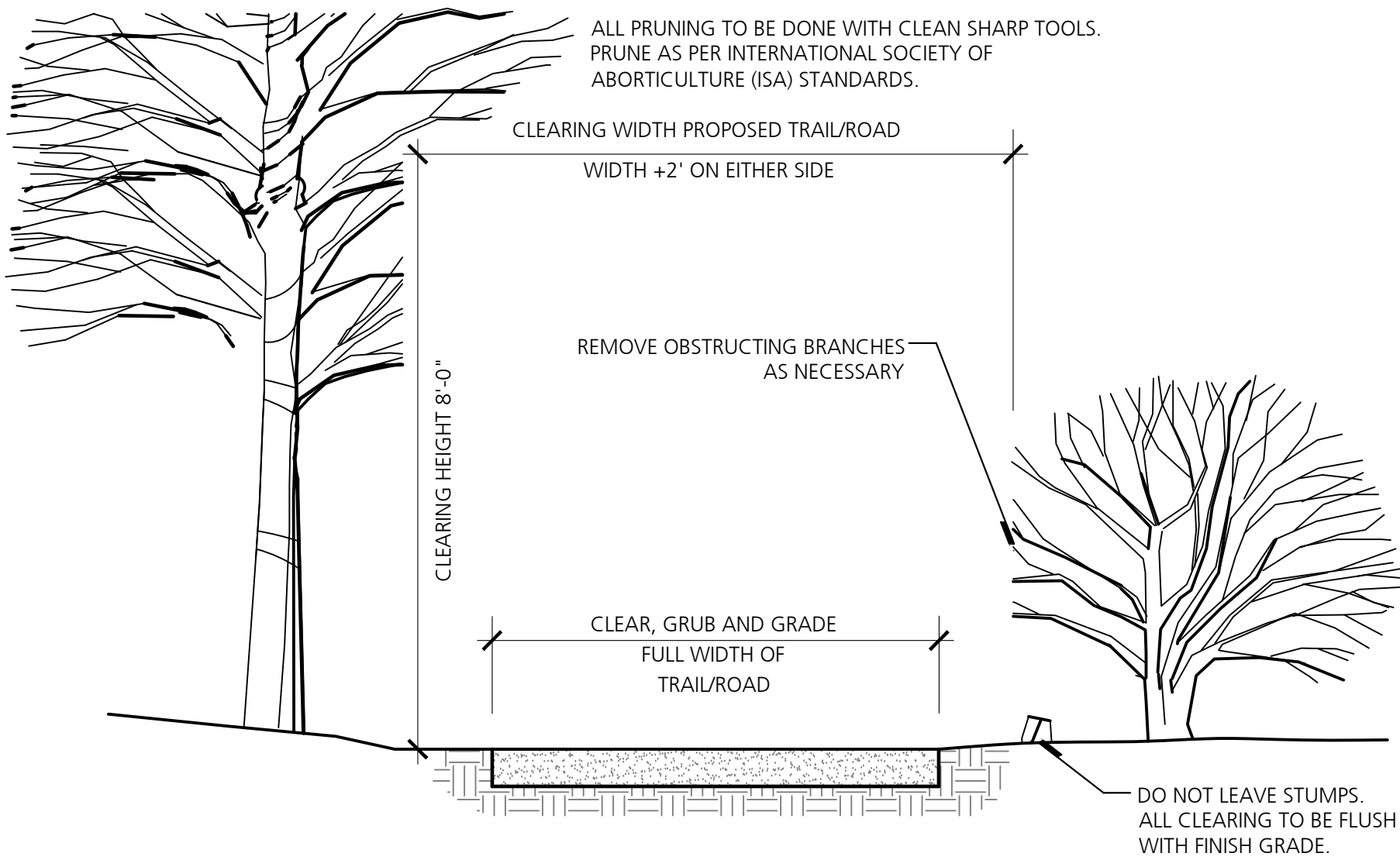


2 Turbidity Curtain: MDTMB SESC Detail
NO SCALE

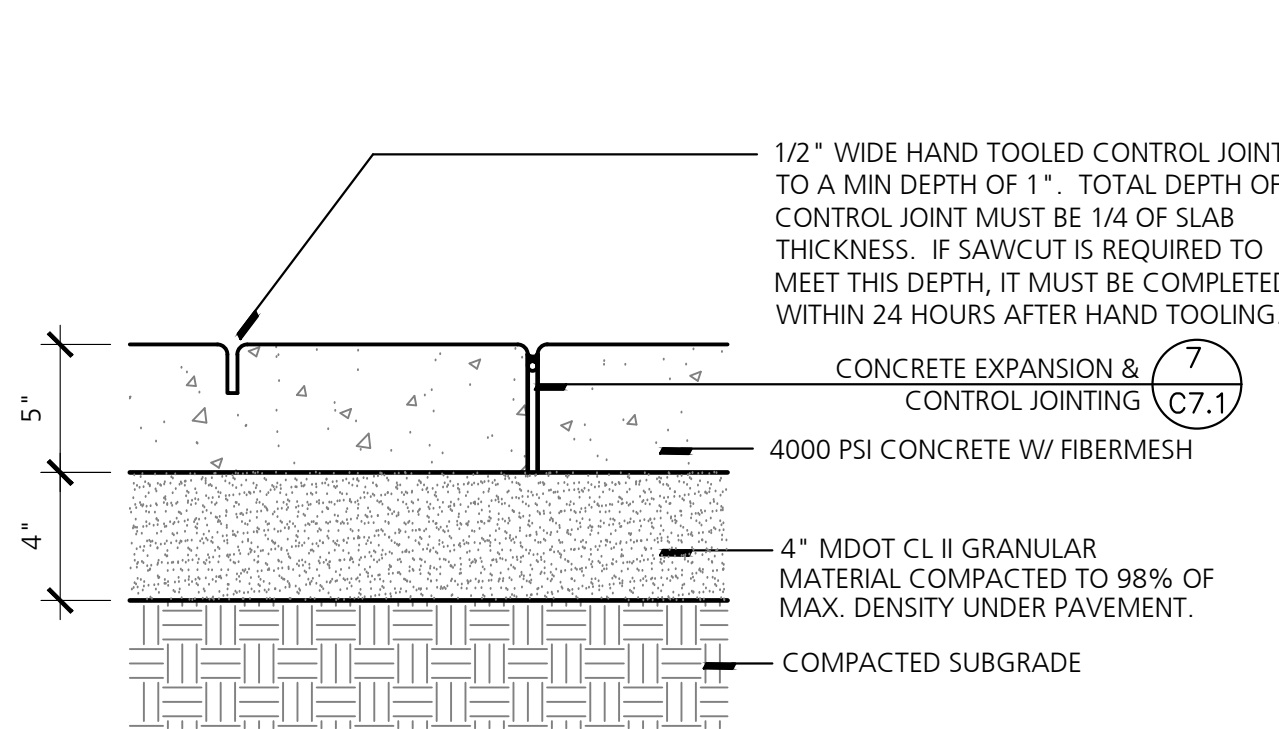


3 Tree Protection Fence
NO SCALE

- NOTES:
- TREE PROTECTION FENCING SHALL BE ERECTED PRIOR TO ANY EARTHWORK OR CONSTRUCTION AND IS TO REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETE.
 - FENCE SHALL BE LOCATED AT THE OUTER PERIMETER OF THE SPREAD OF THE BRANCHES OR CLOSER ONLY AT THE DIRECTION OF THE PROJECT LANDSCAPE ARCHITECT.
 - ALL DEBRIS, FILL, EQUIPMENT AND MATERIAL SHALL BE KEPT CLEAR OF AREA WITHIN PROTECTIVE FENCE. NO CLEANING, STORAGE, OR DISPOSAL OF ANY MATERIAL ALLOWED WITHIN THE DRIP LINE OF TREES TO BE SAVED.
 - TREE PROTECTION FENCING SHALL BE INSTALLED WHERE DIRECTED BY LANDSCAPE ARCHITECT.

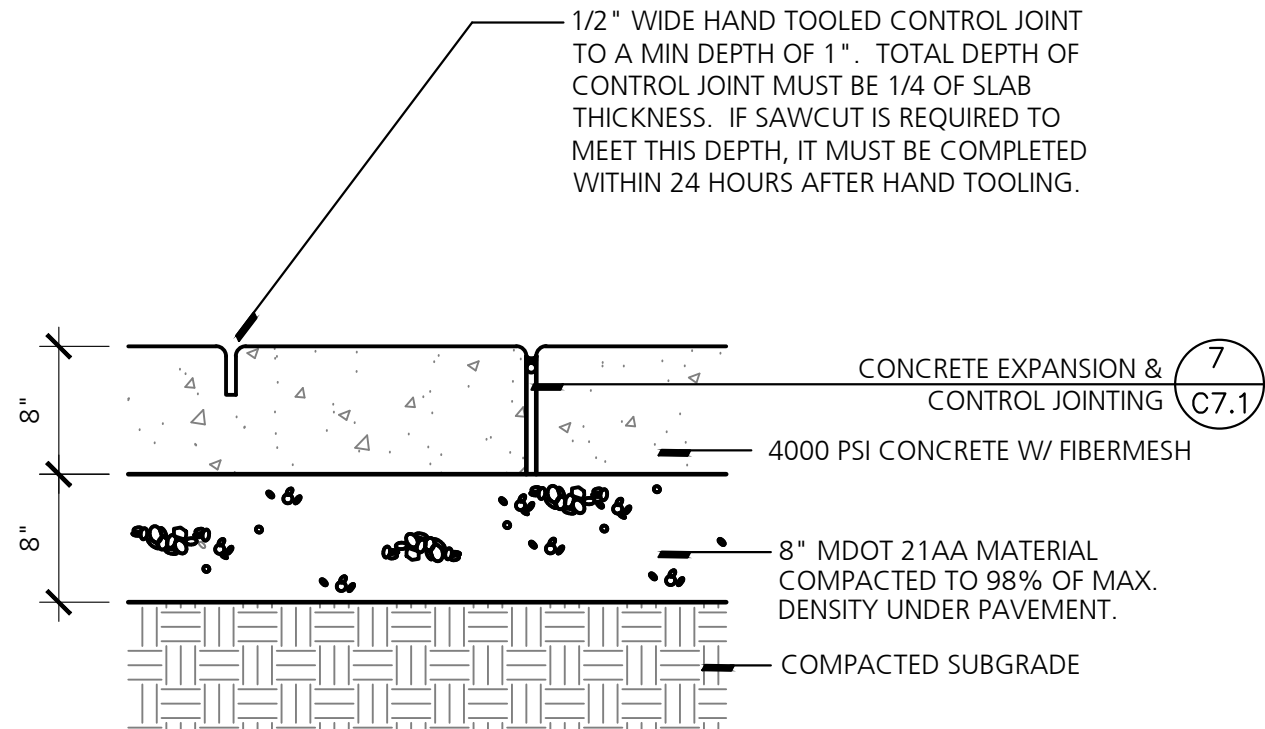


4 Clearing and Grubbing Extents at Trail/Road
NO SCALE



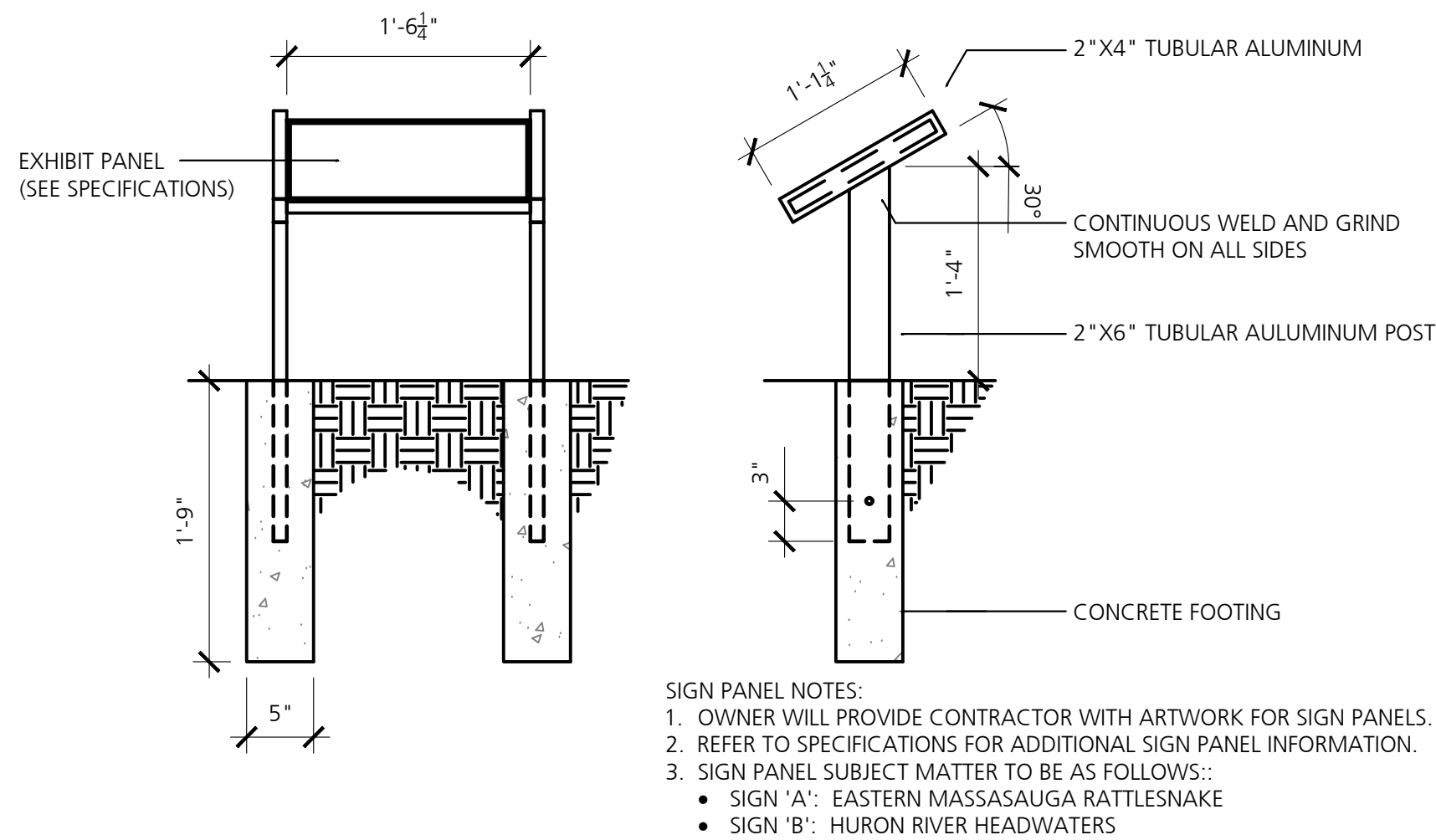
- NOTES:
- EXPANSION JOINTS SHALL BE INSTALLED SUCH THAT NO SINGLE DIMENSION EXCEEDS 50 FT. EXPANSION JOINTS TO BE LOCATED PER PLAN.
 - 1/2" EXPANSION PAPER SHALL BE PLACED AT ALL LOCATIONS THAT NEW SIDEWALK ABUTS CONCRETE CURB, EXISTING SIDEWALK, LIGHT POLE BASES, BUILDINGS/STRUCTURES, AND RETAINING WALLS.
 - SNAP-CAP EXPANSION JOINT STRIPS CAN BE USED ON ALL EXPANSION JOINTS
 - ALL EXPANSION JOINTS SHALL BE SEALED.
 - BROOM FINISH PARALLEL TO JOINTS AND PERPENDICULAR TO TRAFFIC (IF BROOMING PATTERN NOT SHOWN).

5 Concrete Pavement - Standard Duty (S.D.)
NO SCALE

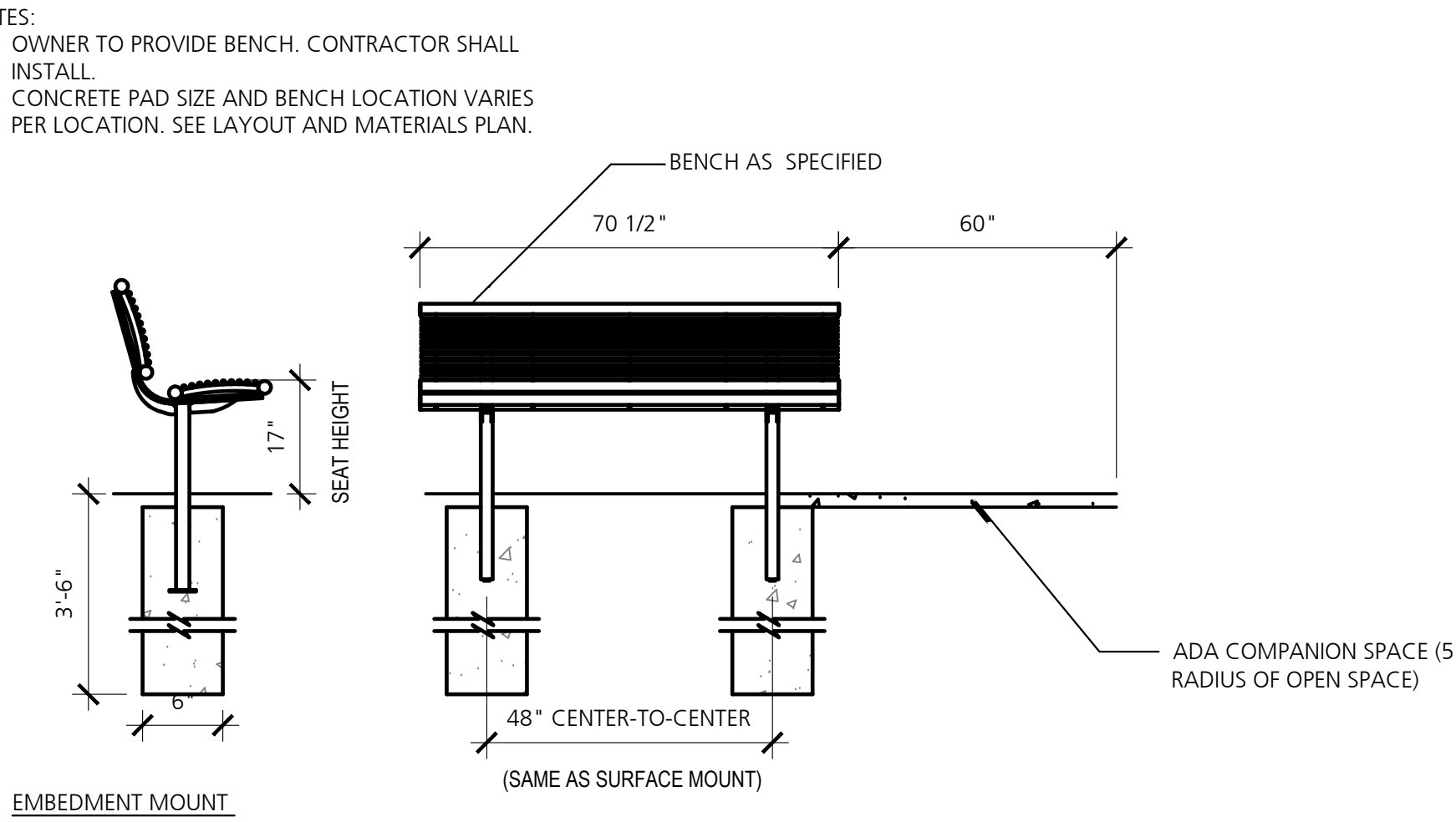


- NOTES:
- EXPANSION JOINTS SHALL BE INSTALLED SUCH THAT NO SINGLE DIMENSION EXCEEDS 50 FT. EXPANSION JOINTS TO BE LOCATED PER PLAN.
 - 1/2" EXPANSION PAPER SHALL BE PLACED AT ALL LOCATIONS THAT NEW SIDEWALK ABUTS CONCRETE CURB, EXISTING SIDEWALK, LIGHT POLE BASES, BUILDINGS/STRUCTURES, AND RETAINING WALLS.
 - SNAP-CAP EXPANSION JOINT STRIPS CAN BE USED ON ALL EXPANSION JOINTS
 - ALL EXPANSION JOINTS SHALL BE SEALED.
 - BROOM FINISH PARALLEL TO JOINTS AND PERPENDICULAR TO TRAFFIC (IF BROOMING PATTERN NOT SHOWN).

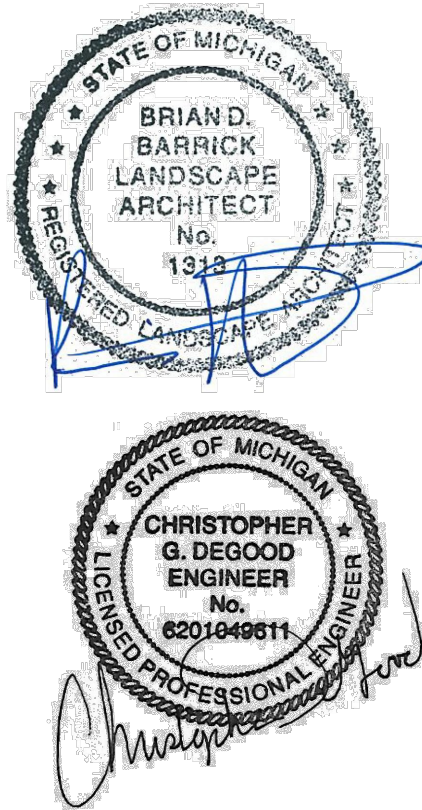
6 Concrete Pavement - Heavy Duty (H.D.)
NO SCALE



7 Wildlife Interpretive Sign
SCALE: SEE DETAILS



8 Bench with ADA Companion Seating
SCALE: SEE DETAILS

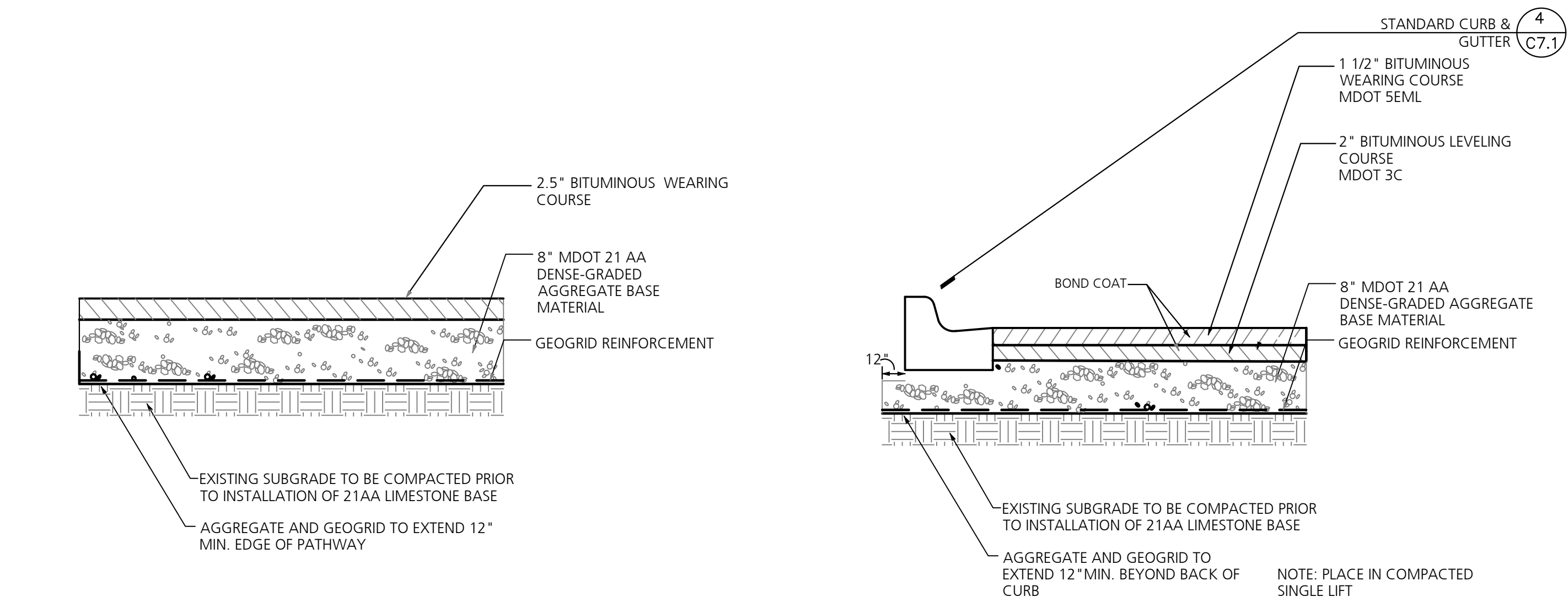


Seal

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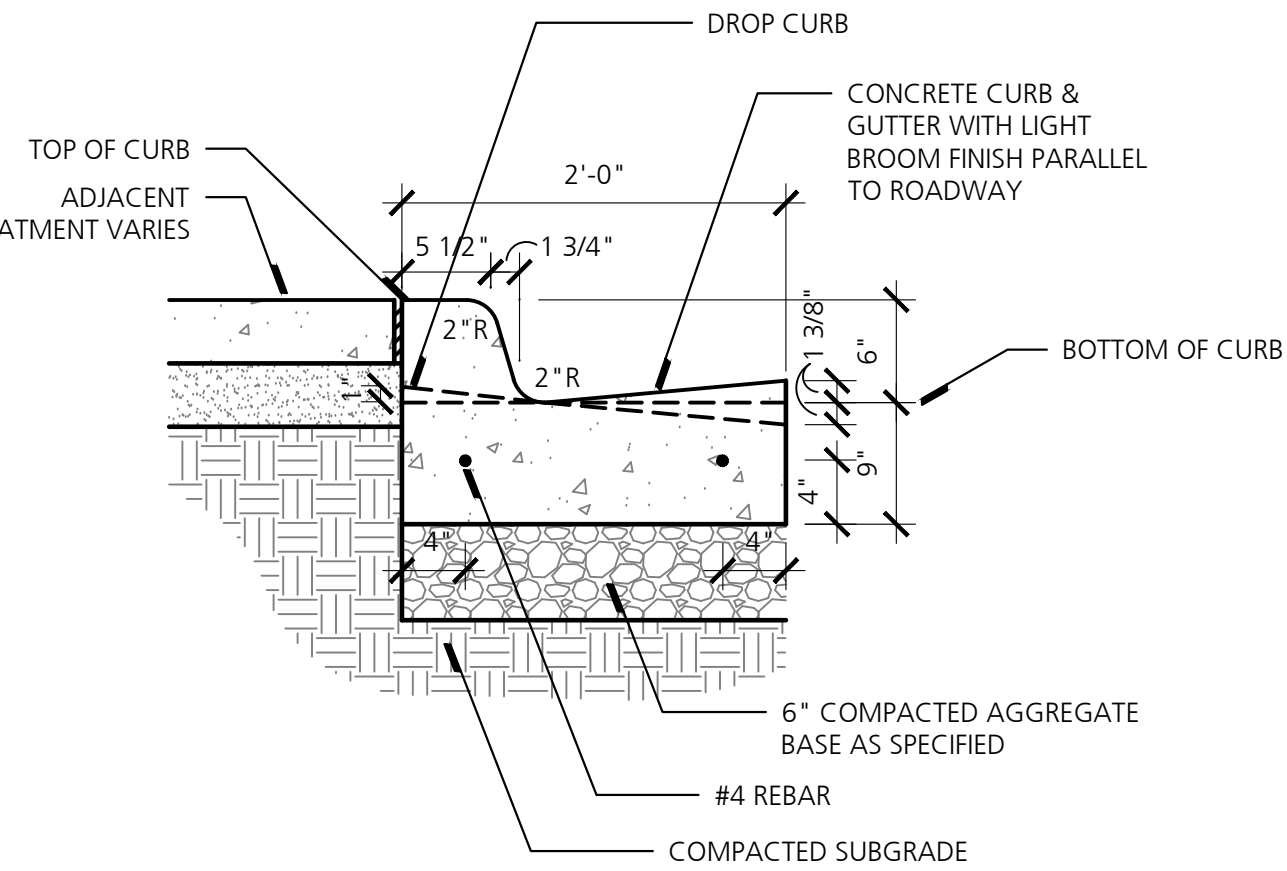
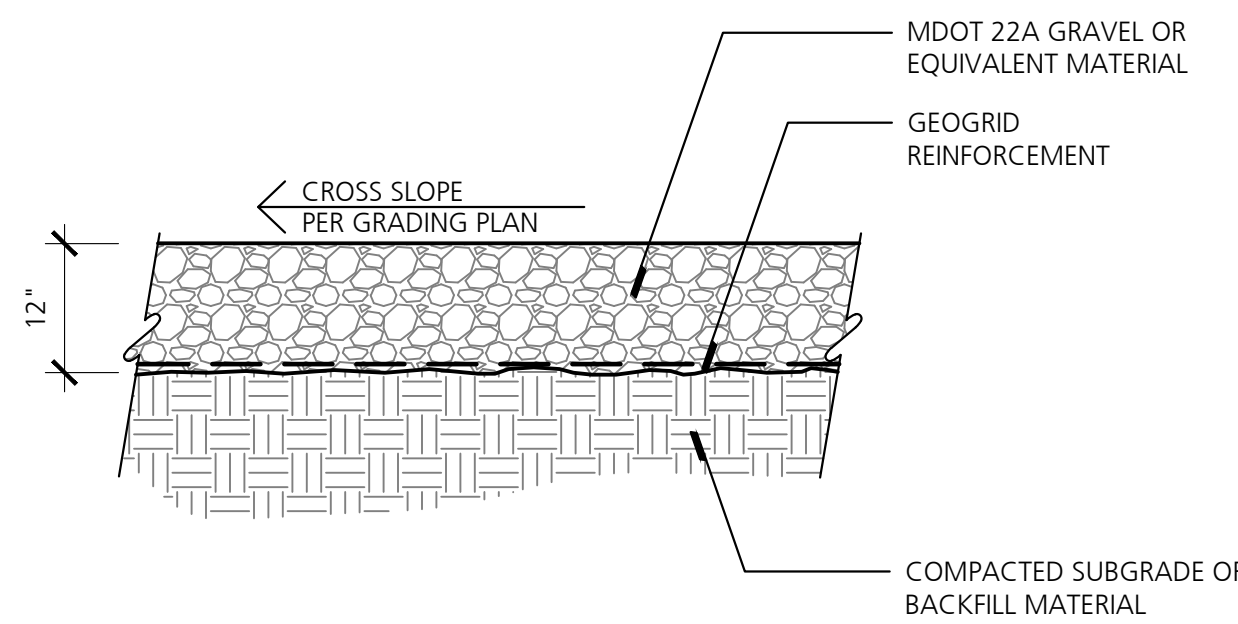
Quality Control	
Drawn: MK, LDS	
Checked: LDS, BB	
Approved: BB	



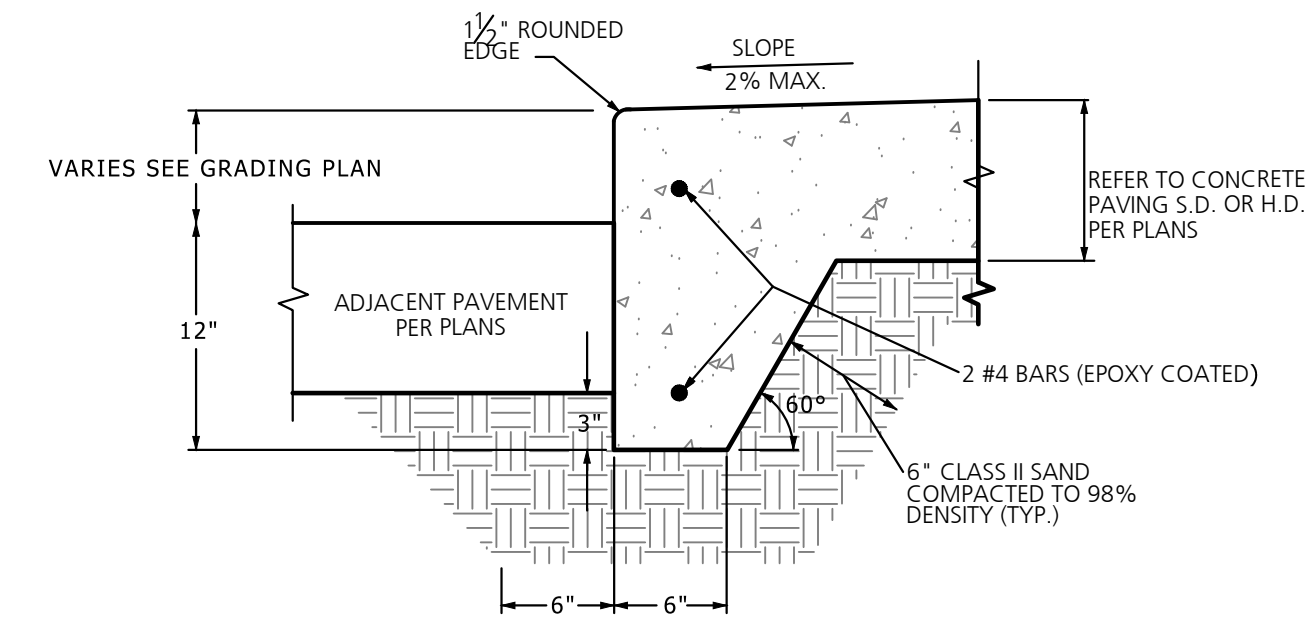
1 Bituminous Paving - Pedestrian Pathway
NO SCALE

2 Bituminous Paving - Standard Duty (Service Road)
NO SCALE

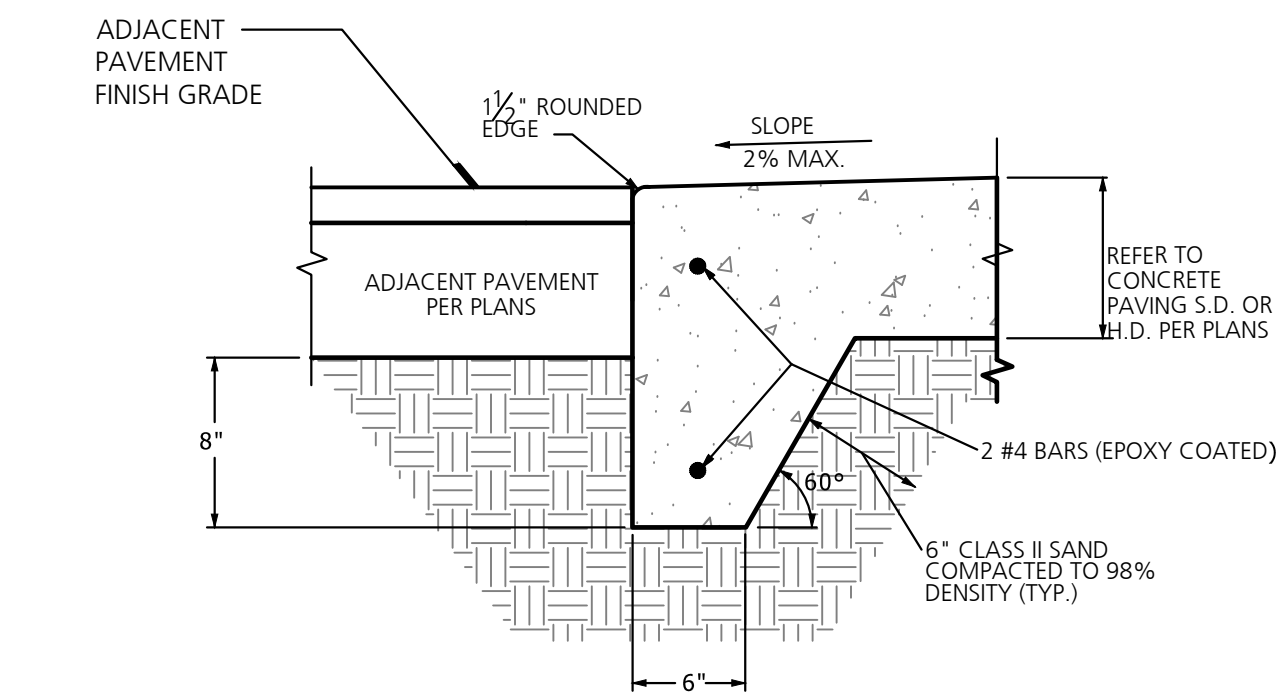
3 Gravel Drive
NO SCALE



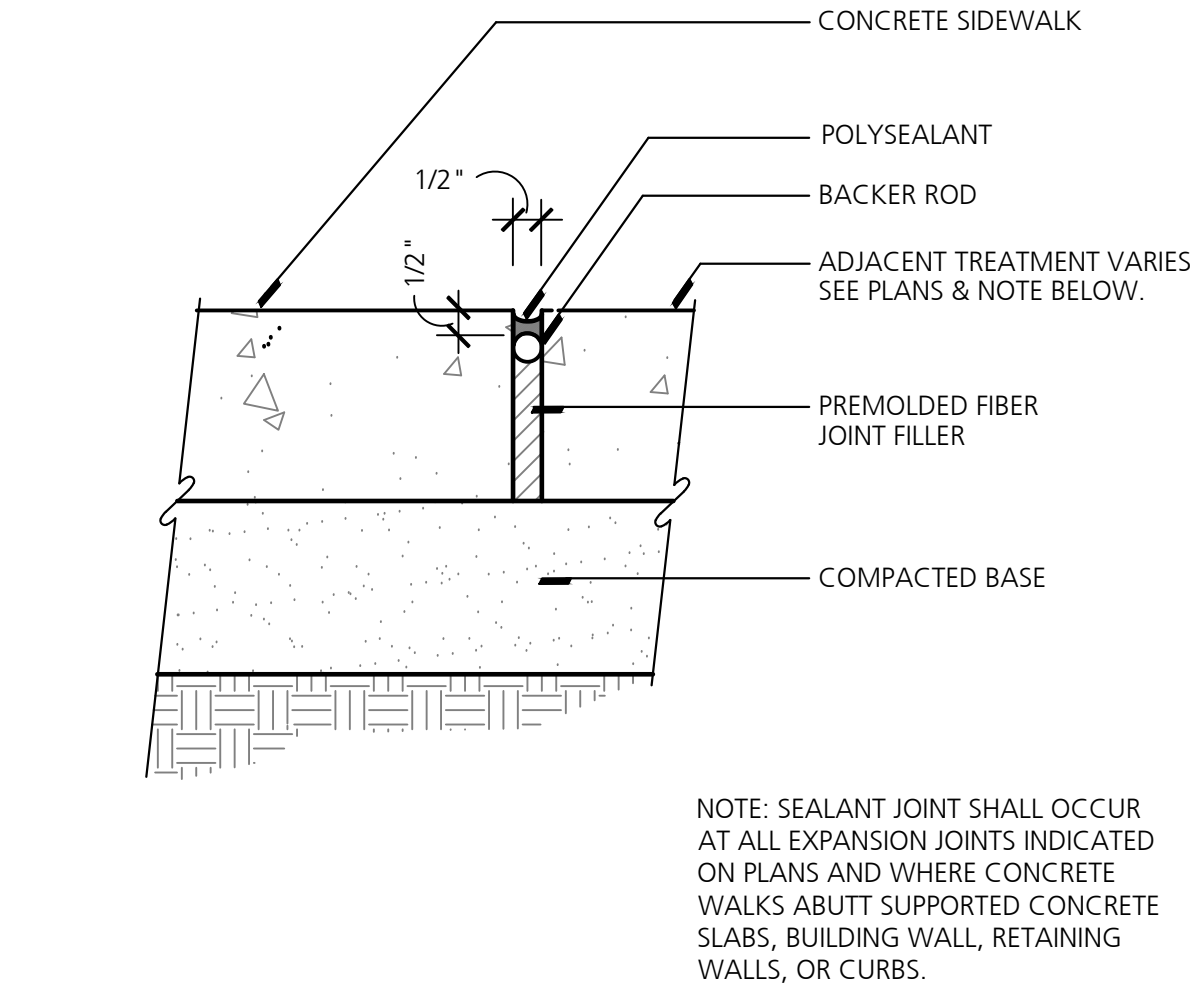
4 Standard Curb & Gutter / MDOT F4
SCALE: 1" = 1'-0"



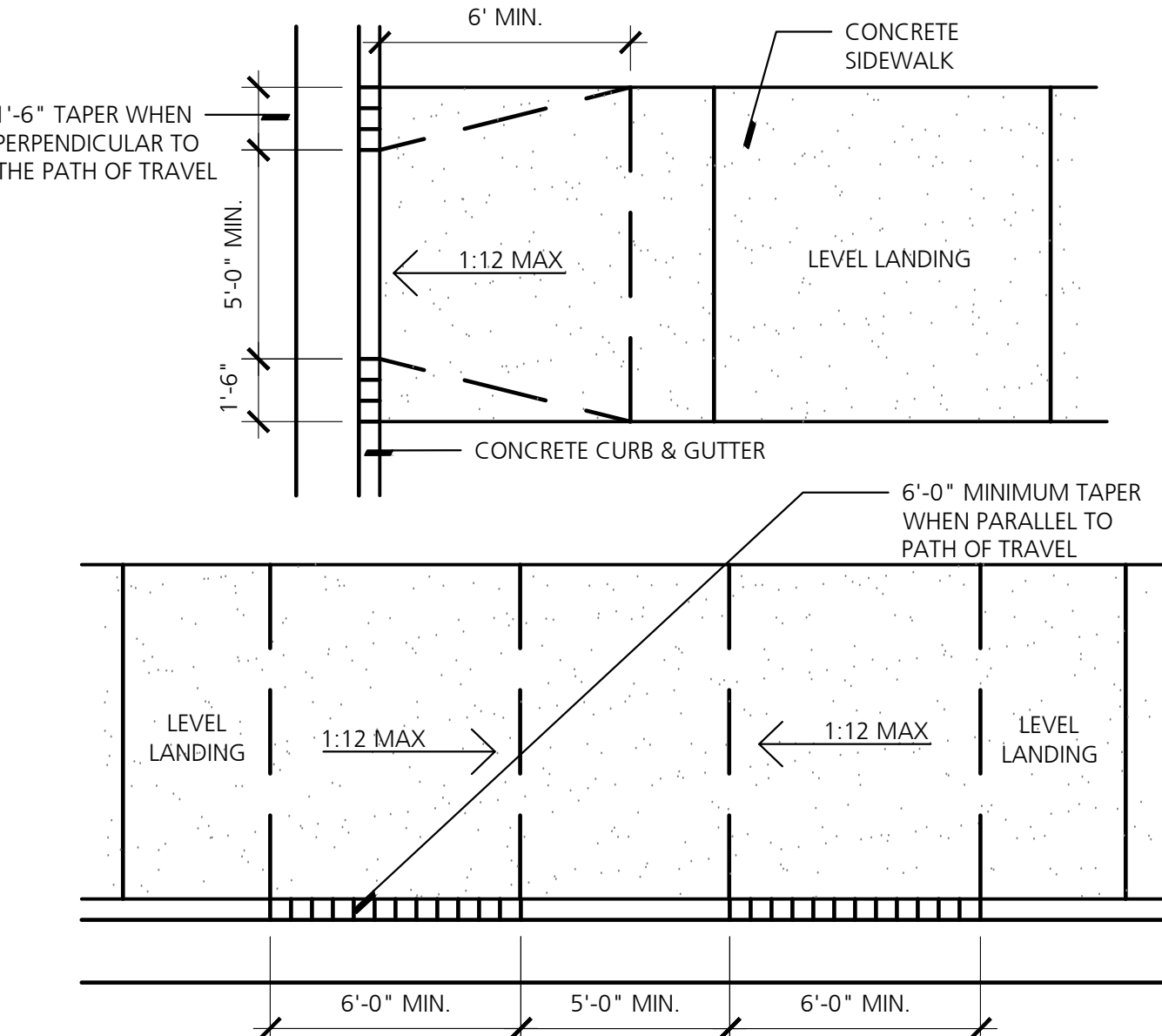
5 Concrete Sidewalk with Integral Curb
NO SCALE



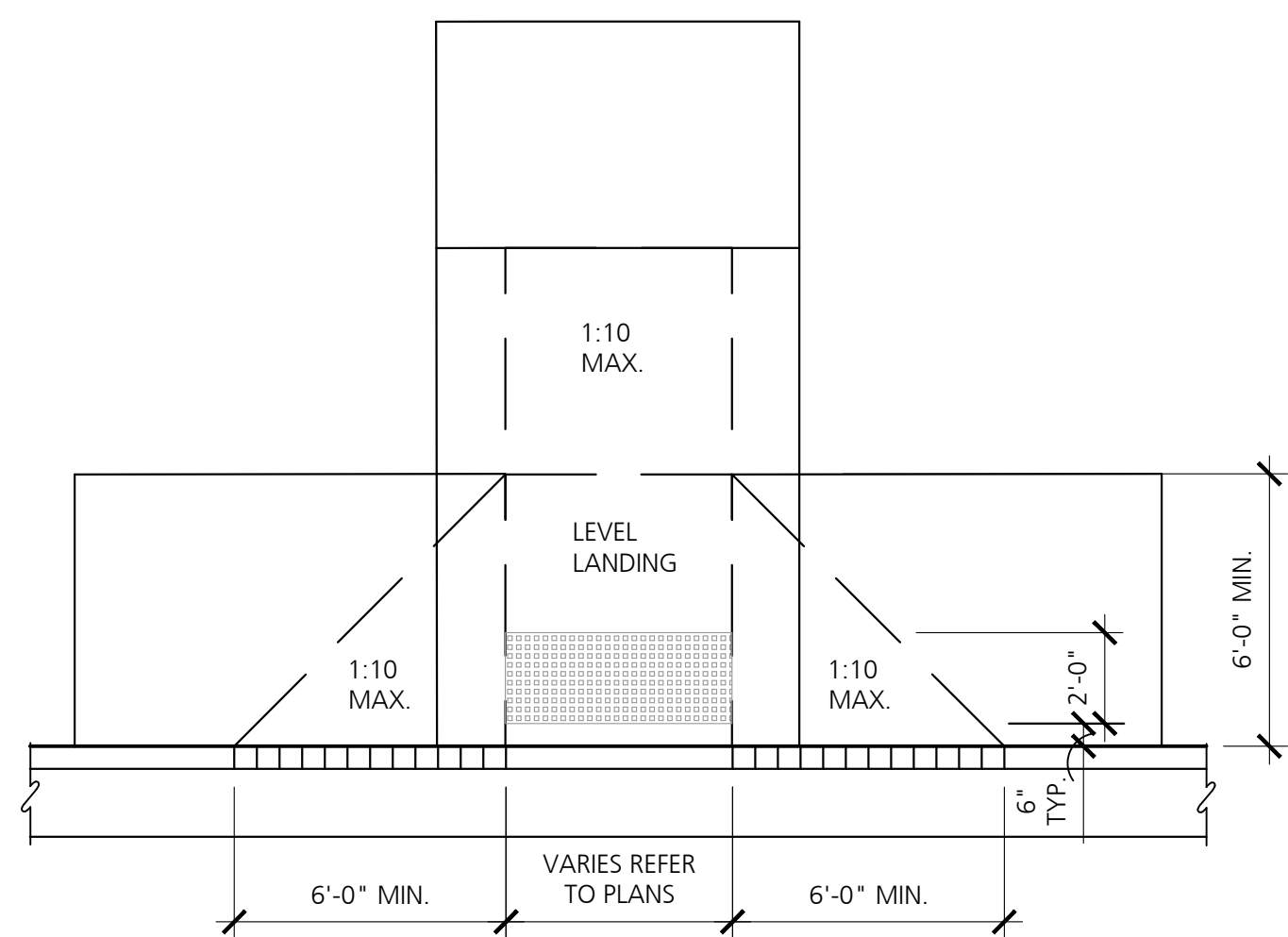
6 Flush Edge Thickened Walk
NO SCALE



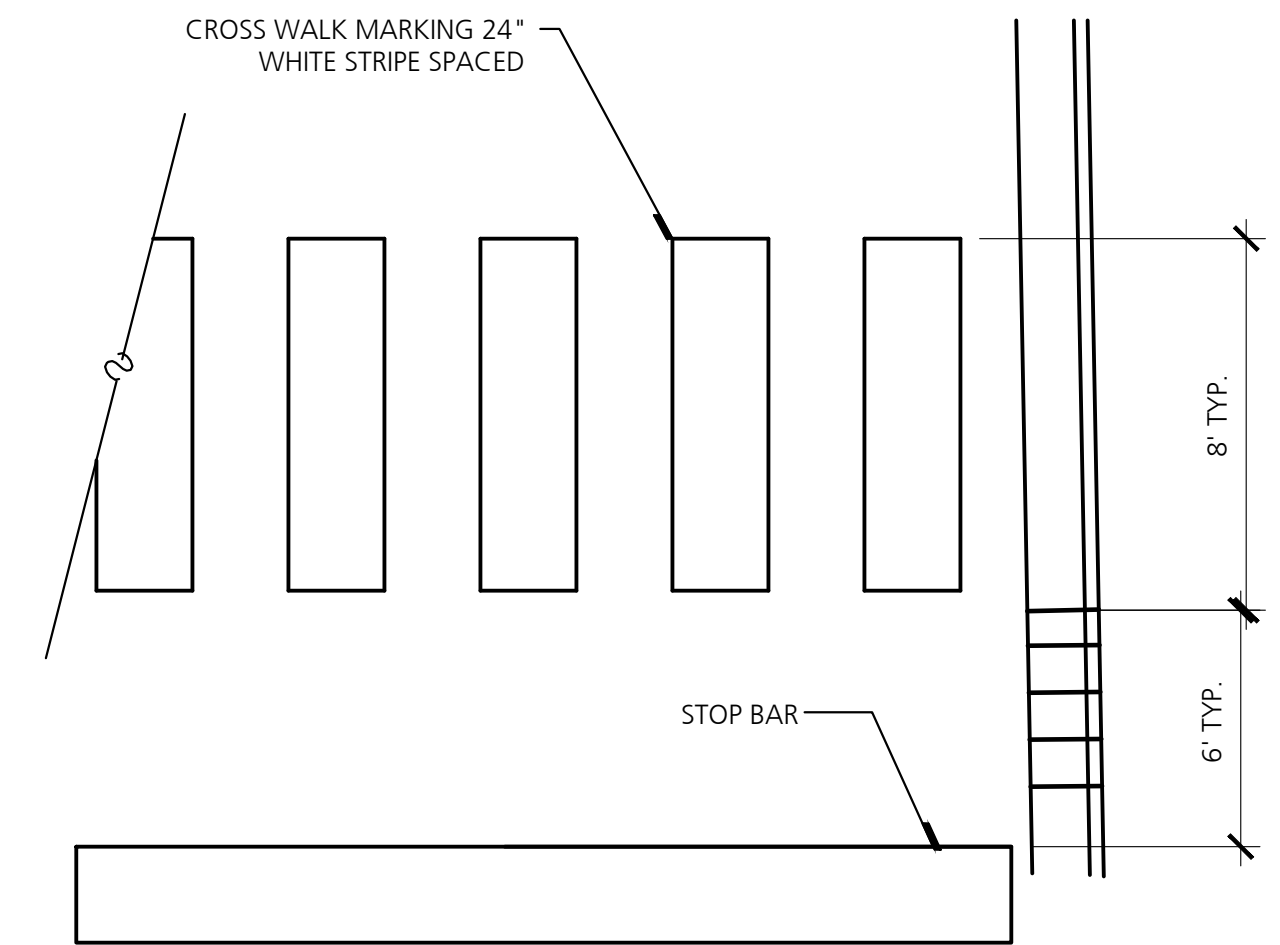
7 Concrete Expansion & Control Jointing
NO SCALE



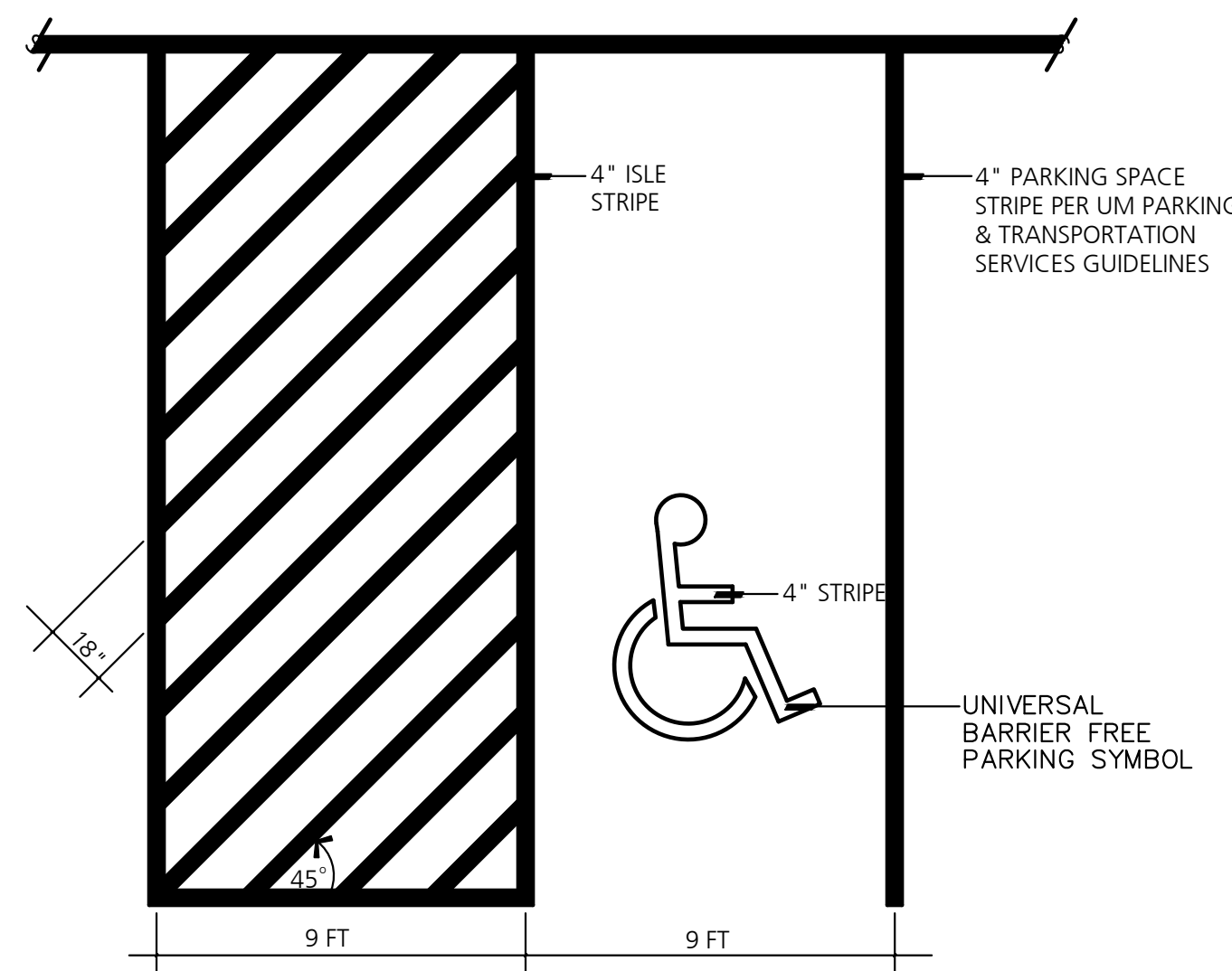
8 MDOT Pedestrian Ramp
NO SCALE



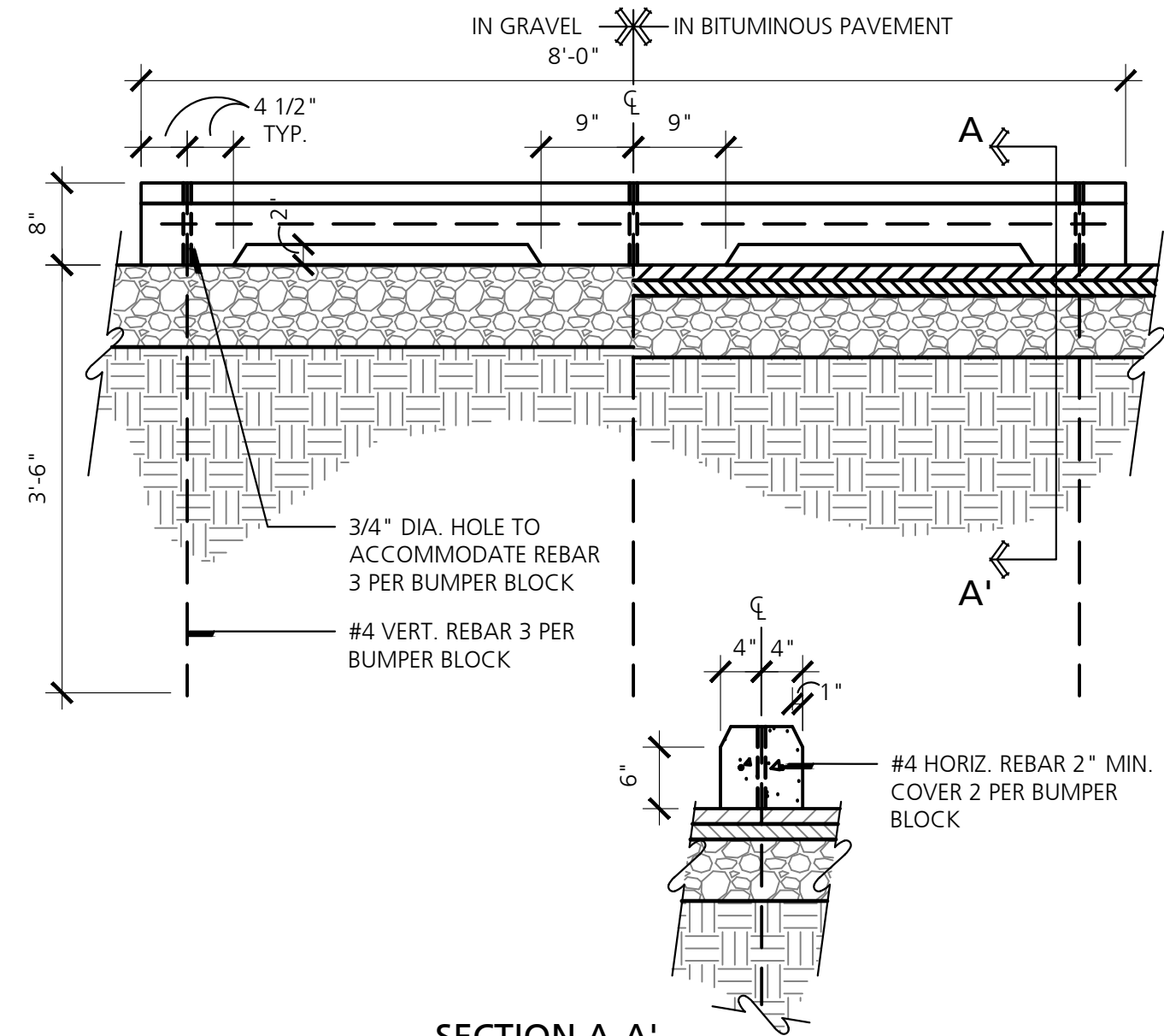
9 MDOT Pedestrian Ramp
NO SCALE



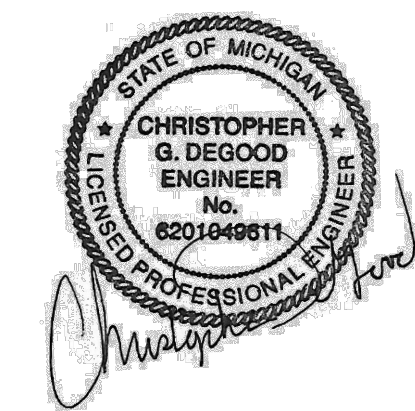
10 Crosswalk Striping
NO SCALE



11 Barrier Free Parking Space Striping
SCALE 1/4" = 1' - 0"



12 Precast Concrete Bumper Block
SCALE 1/4" = 1' - 0"



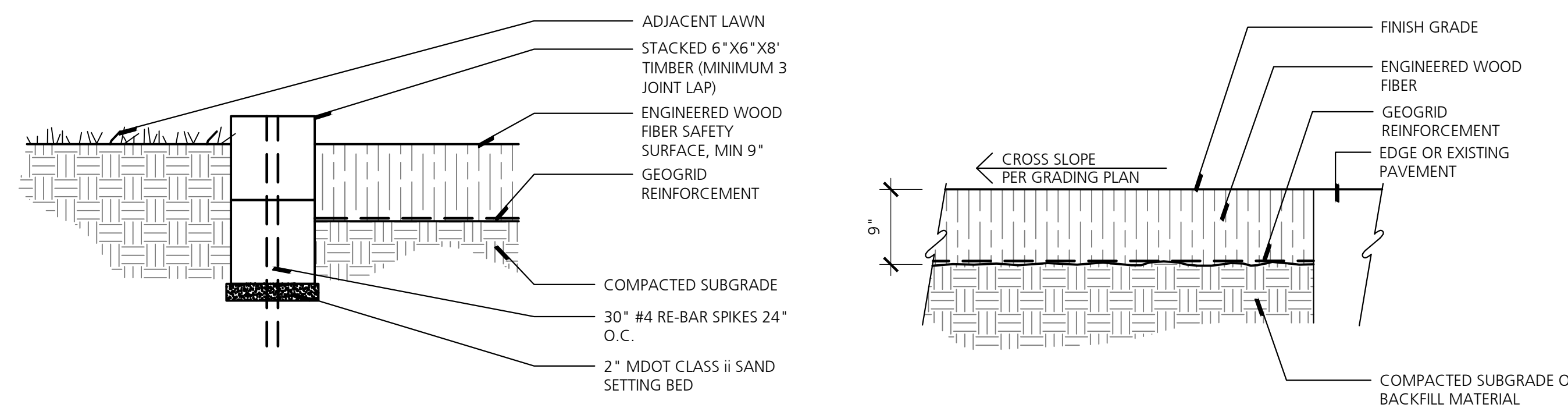
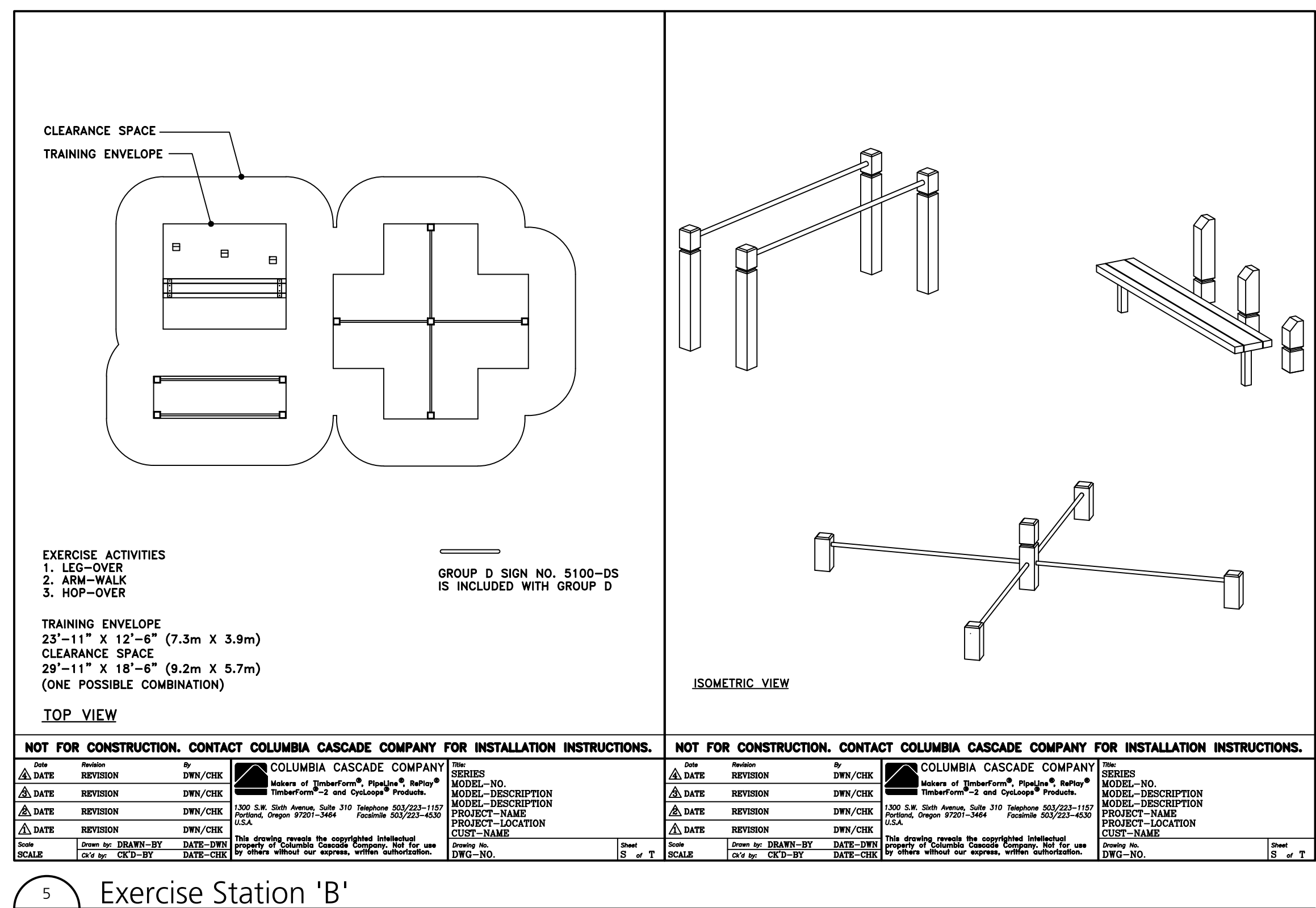
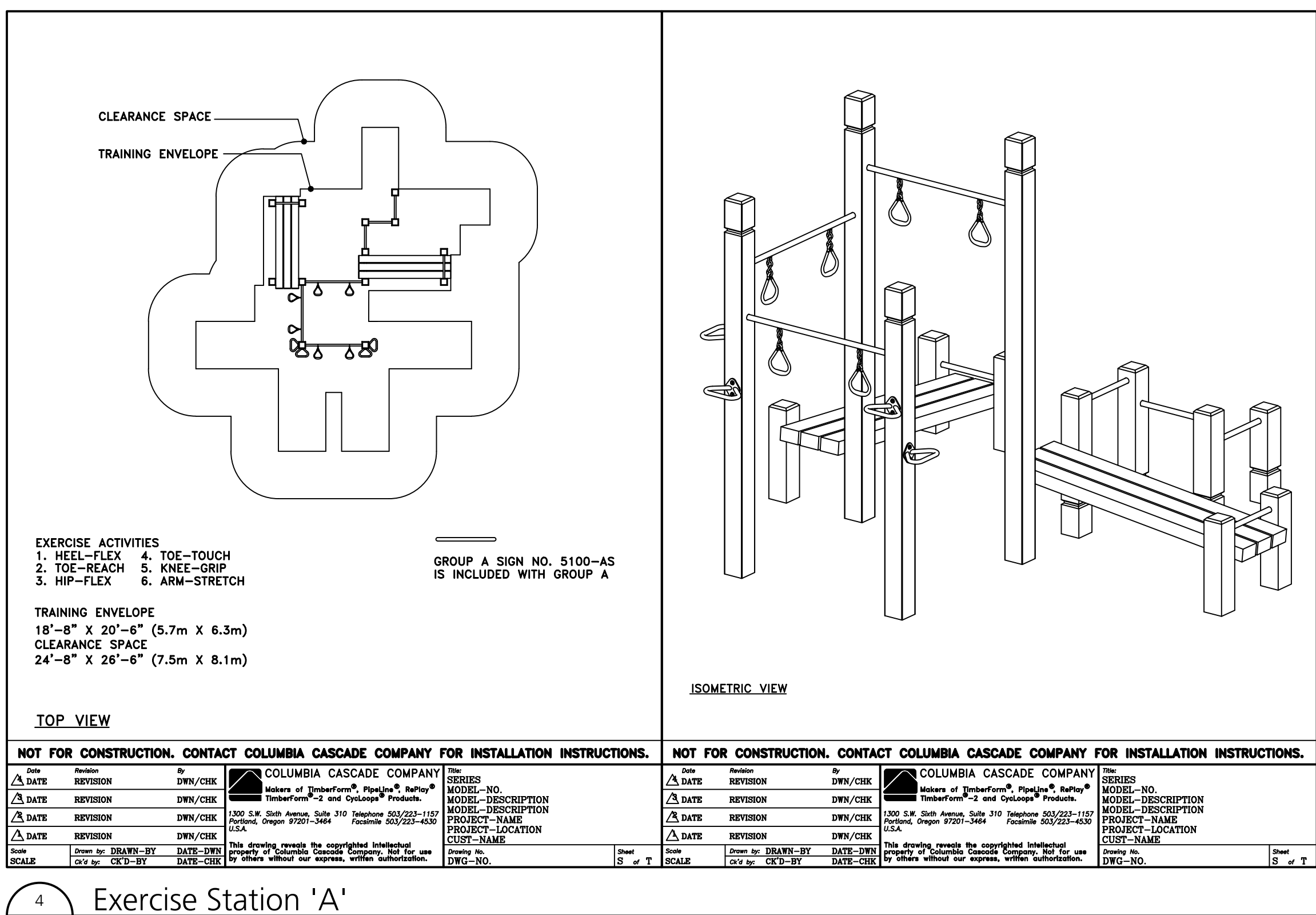
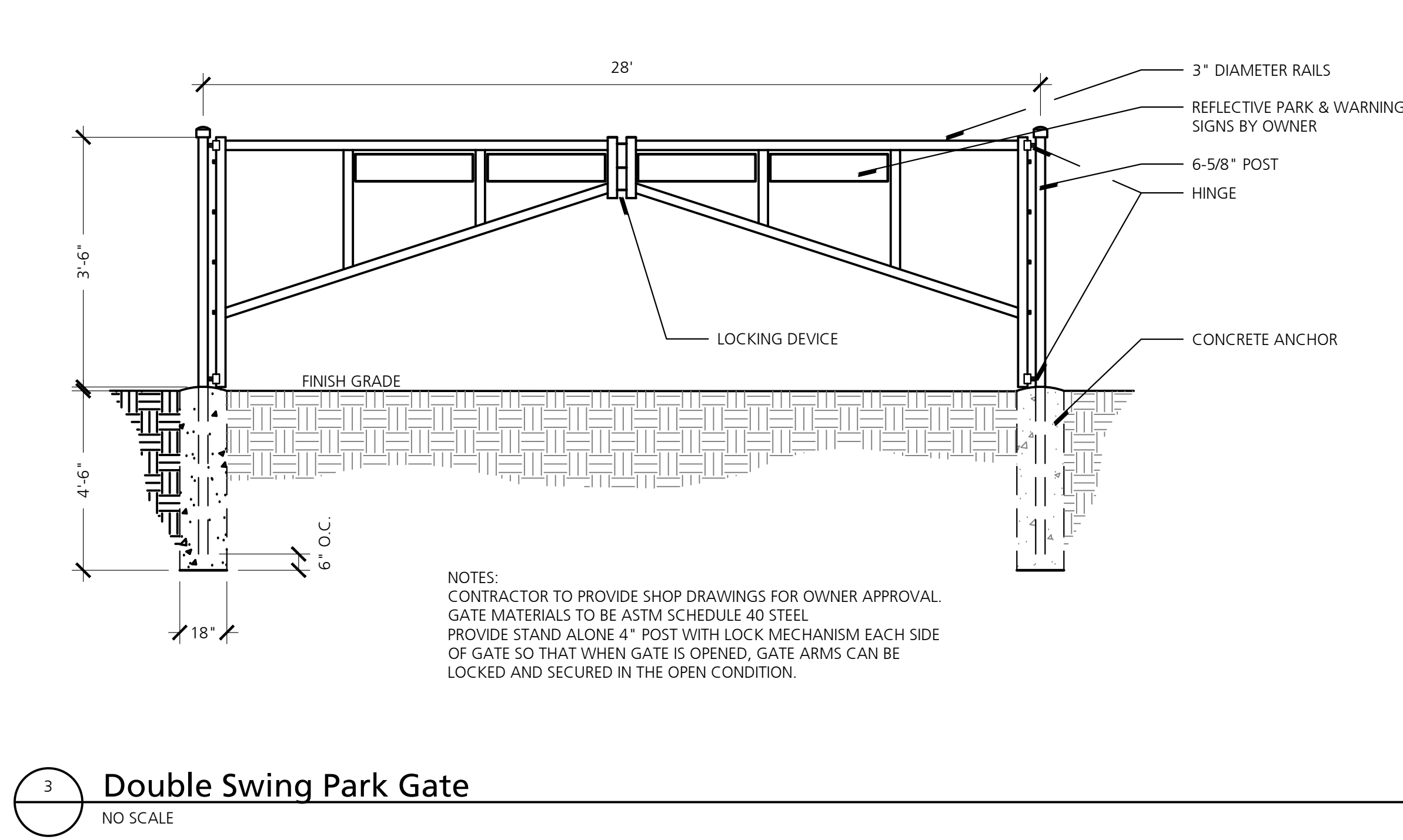
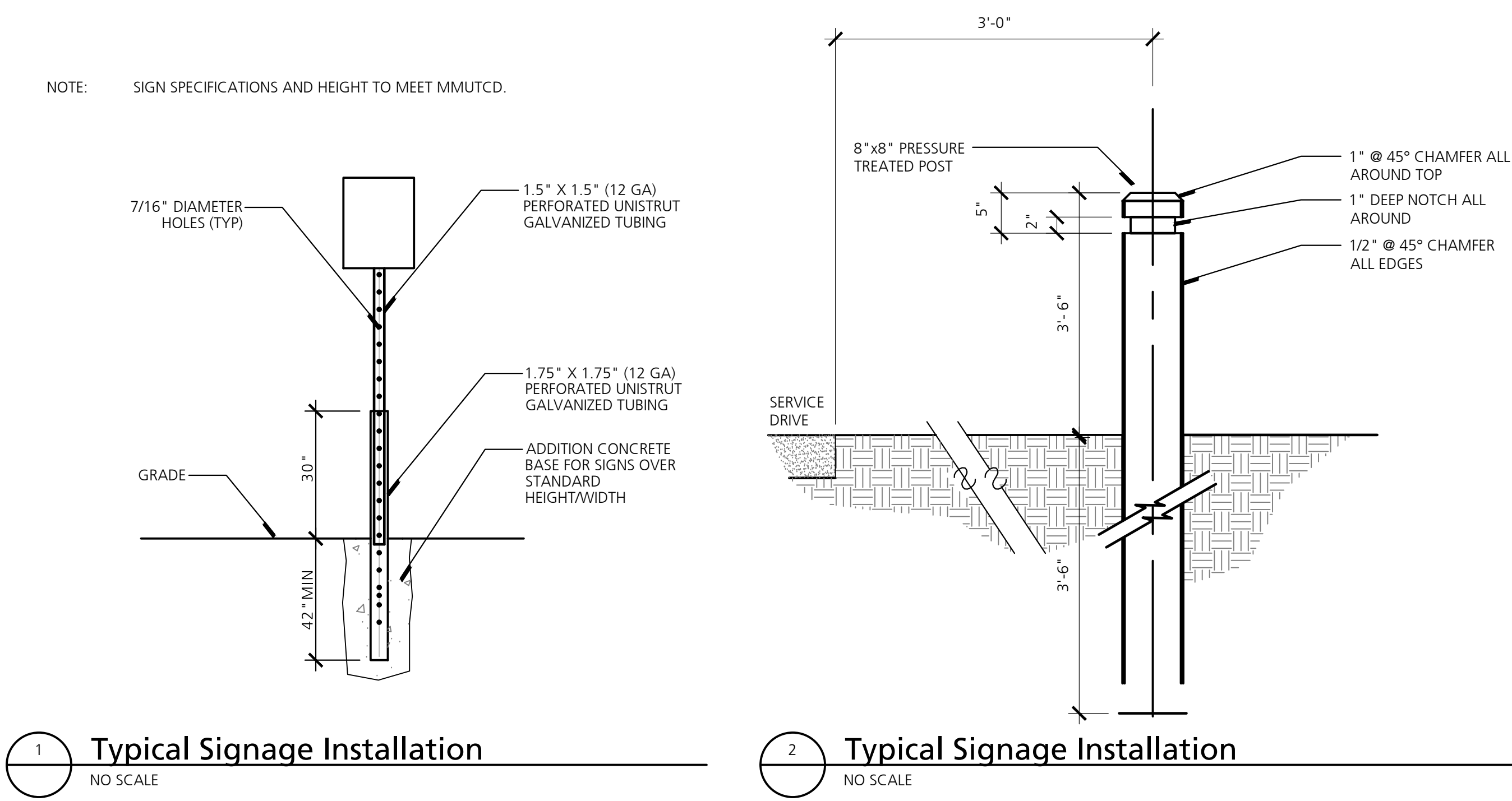
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Checked: LDS, BB
Approved: BB

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R

Beckett&Raeder

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535 West William, Suite 101
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Consultants

STATE OF MICHIGAN

BRIAN D. BARRICK

LANDSCAPE ARCHITECT

No. 1312

REGISTERED LANDSCAPE ARCHITECT

STATE OF MICHIGAN

CHRISTOPHER G. DEGOOD

ENGINEER

No. 6201049611

REGISTERED PROFESSIONAL ENGINEER

Seal

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Quality Control

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Checked: LDS, BB

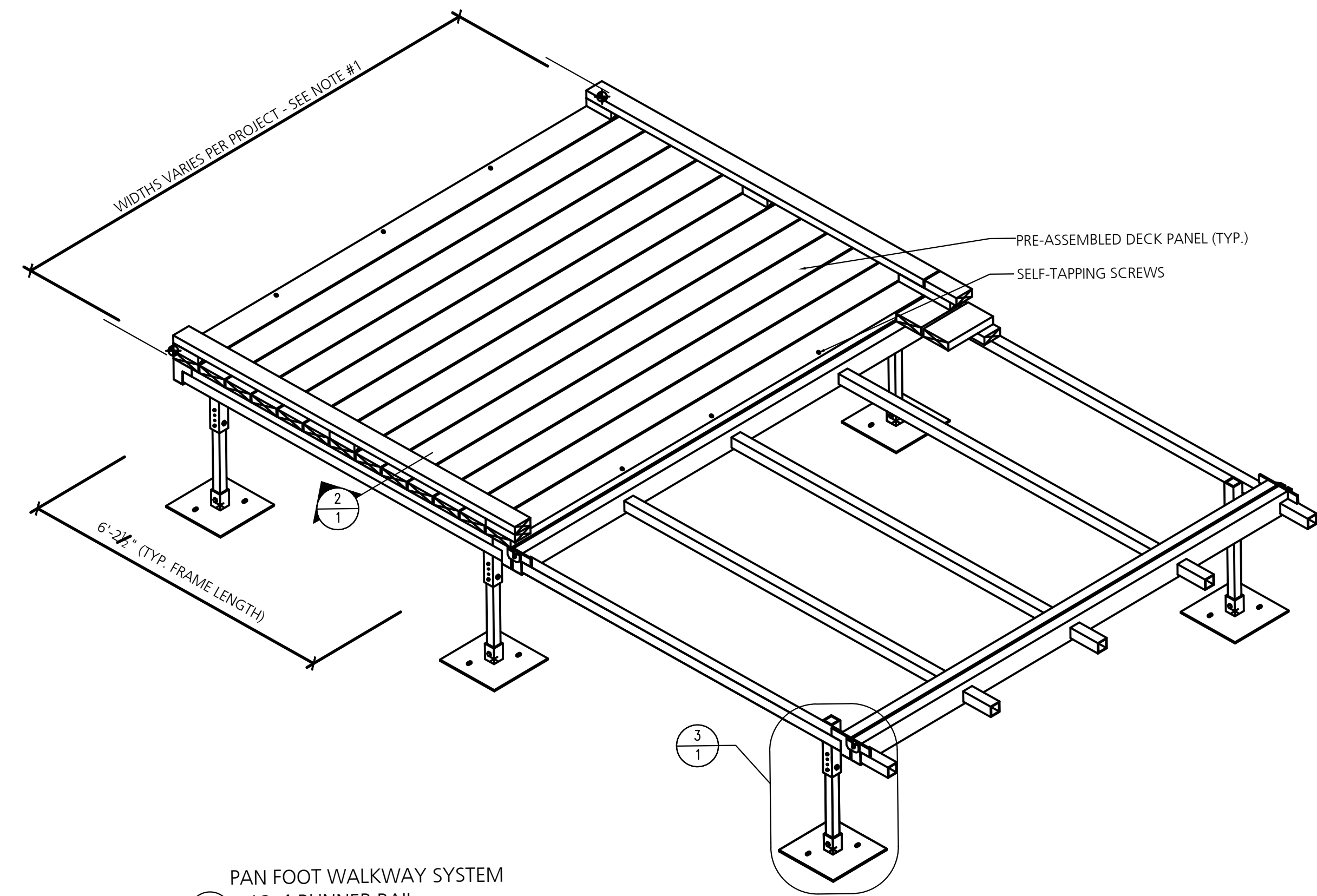
Approved: BB

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Sheet Number

C7.2 SITE DETAILS (3)



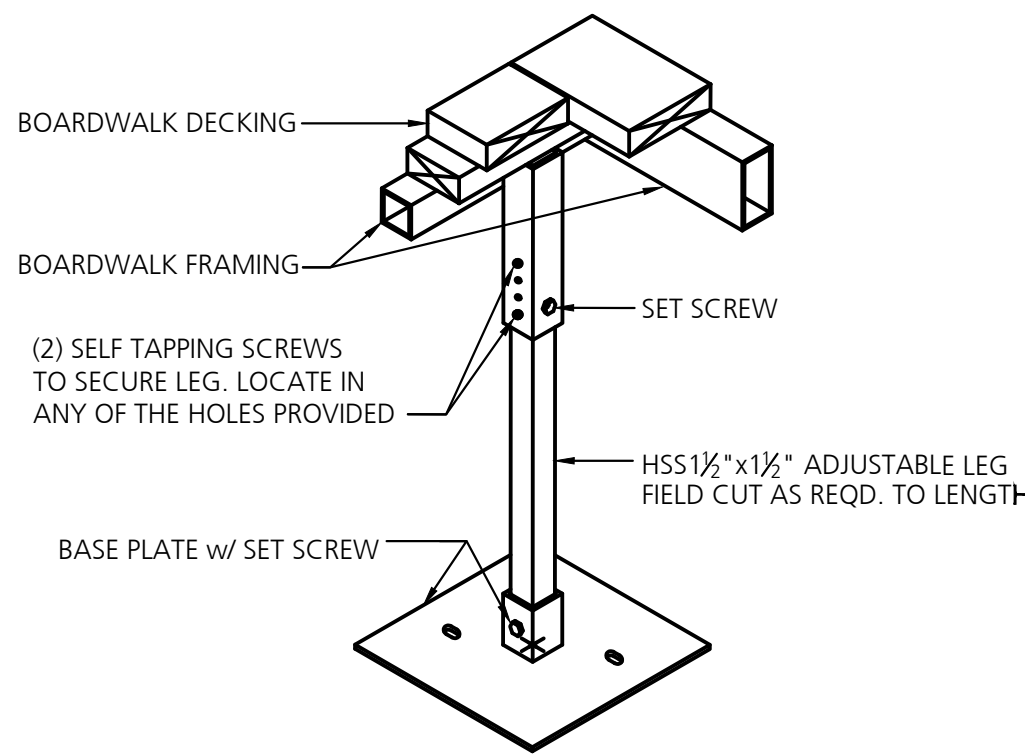
PAN FOOT WALKWAY SYSTEM
w/ 2x4 RUNNER RAIL

1
1
SCALE: N.T.S.

NOTE #1: SHOWN WIDTH IS FOR EXAMPLE ONLY. REFER TO QUOTE FOR ACTUAL WIDTHS. PAN FOOT BOARDWALK SYSTEMS ARE AVAILABLE IN 4'-0", 6'-0", 8'-0" & 10'-0" STANDARD WIDTHS. CUSTOM WIDTHS AVAILABLE UPON REQUEST.

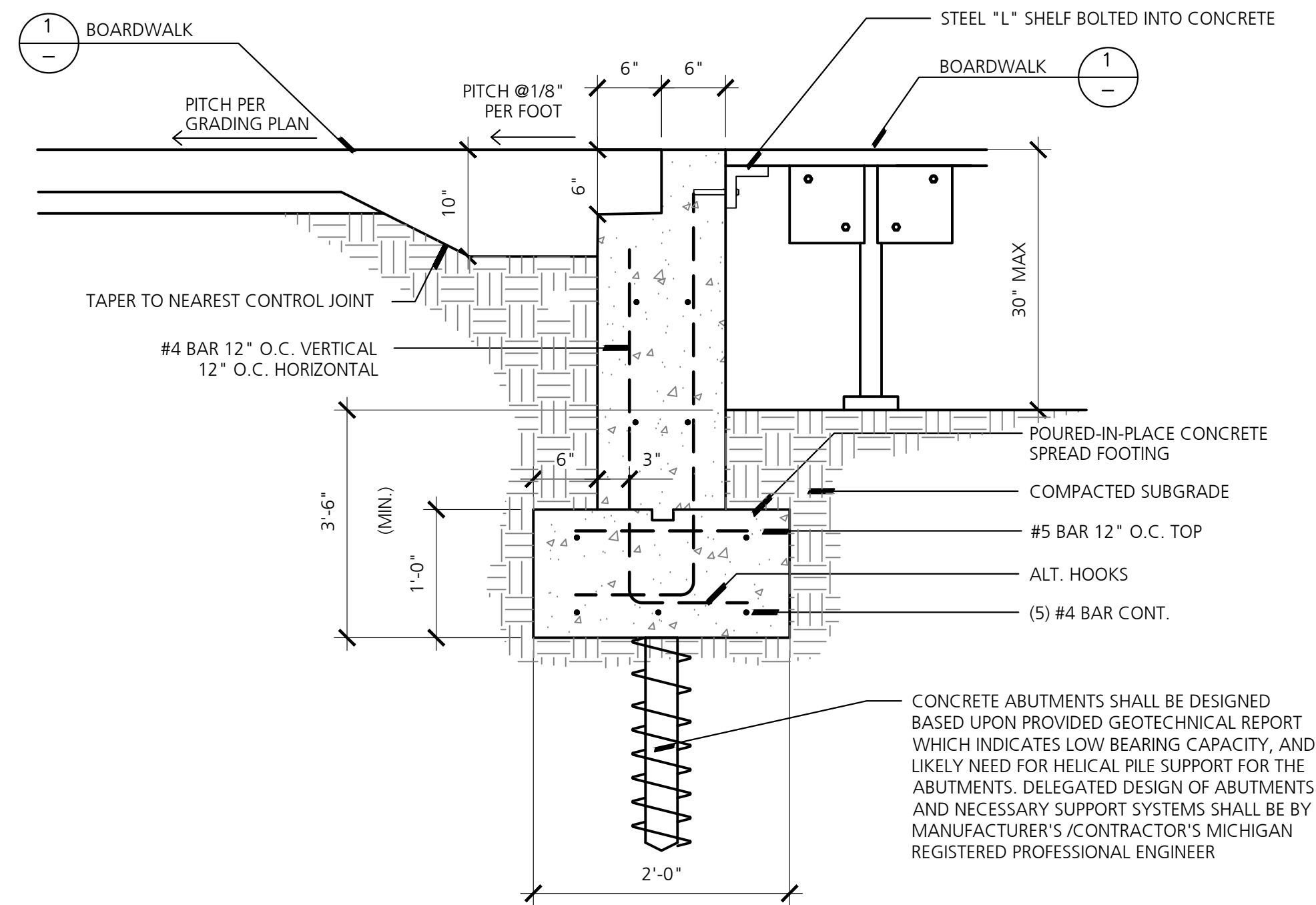
NOTE #2: REFER TO QUOTE FOR DECK AND RAILING MATERIALS USED. SHOWN FRAME SPACING IS FOR EXAMPLE ONLY. WICKCRAFT TO ADJUST DUE TO QUOTED DECK MATERIALS AND REQUIRED LOADING PER CLIENT SPECIFICATIONS.

Labels in diagram: 2x4 CURB RAIL, PRE-ASSEMBLED DECK PANEL, BOARDWALK DECKING, BOARDWALK FRAMING, 2x4 DECK RUNNER (TYP.), 2x6 DECK BOARD (TYP.), (2) STRUCTURAL FSNR LOCATE IN ANY HOLE, HSS 1 1/2" x 1 1/2" ADJUSTABLE LEG - FIELD CUT AS REQD., SET BOLT (TYP.), 12x12" PAN FOOT BASE PLATE (TYP.), 3'-0" (MAX HEIGHT WITHOUT CROSS BRACING SUPPORT), 3", 7'-6", 8'-0" (OUT-OUT DECKING) - SEE NOTE #1



ADJUSTABLE LEG DETAIL

3
1
SCALE: N.T.S.



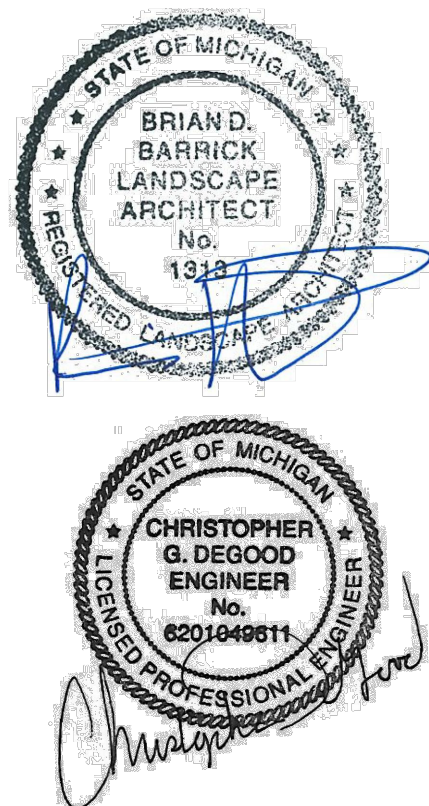
Concrete Abutment at Boardwalk

2
1
NO SCALE

Boardwalk

1
1
NOT TO SCALE

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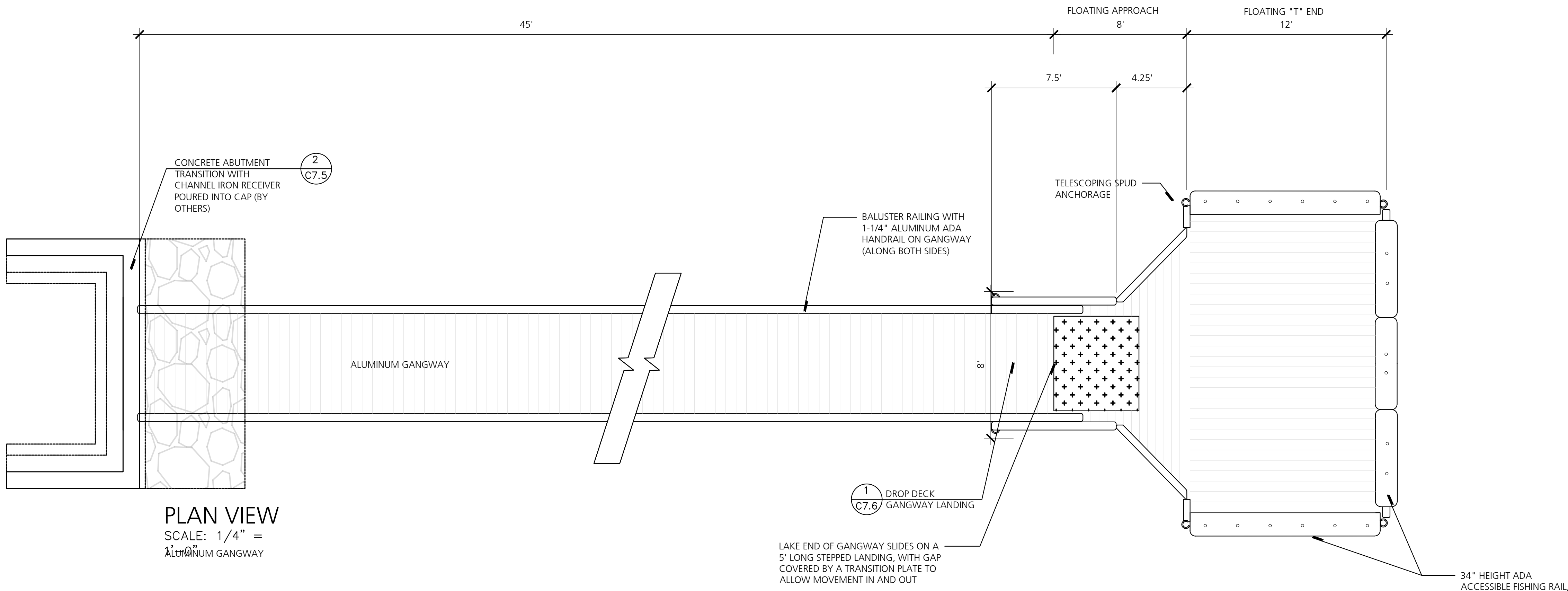
Drawn: MK, LDS
Checked: LDS, BB
Approved: BB

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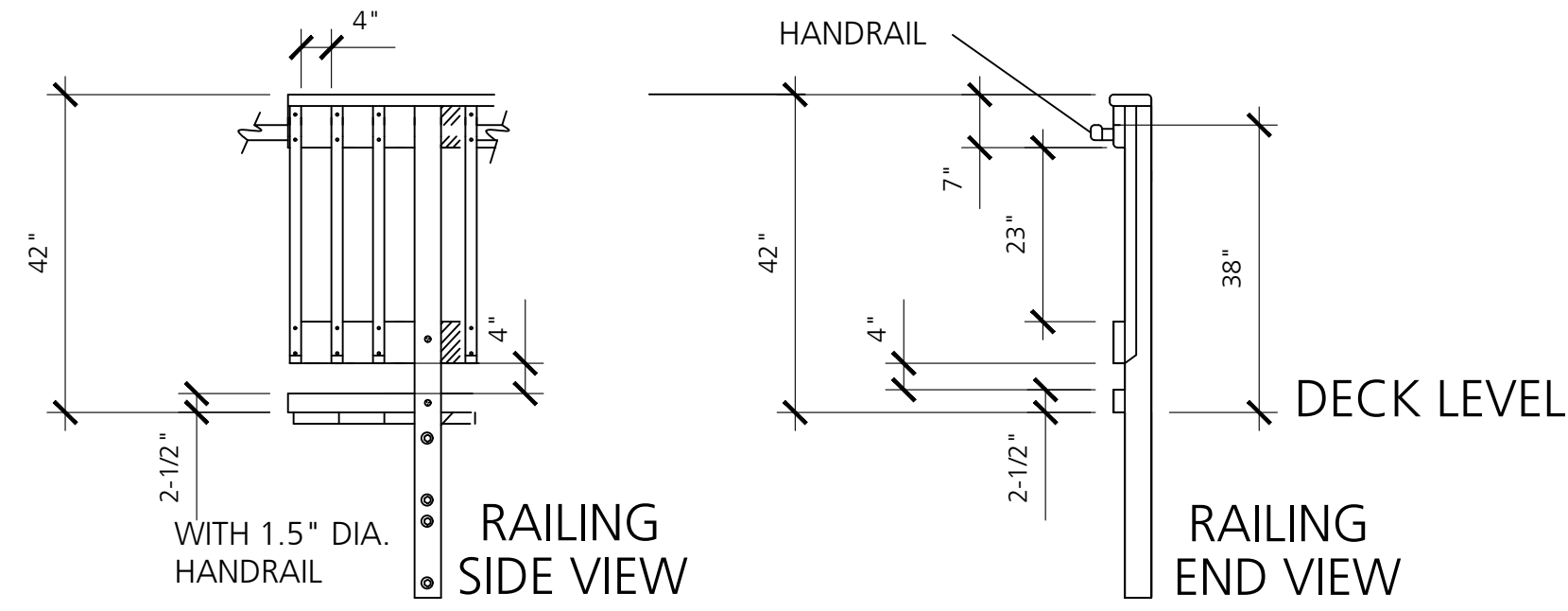
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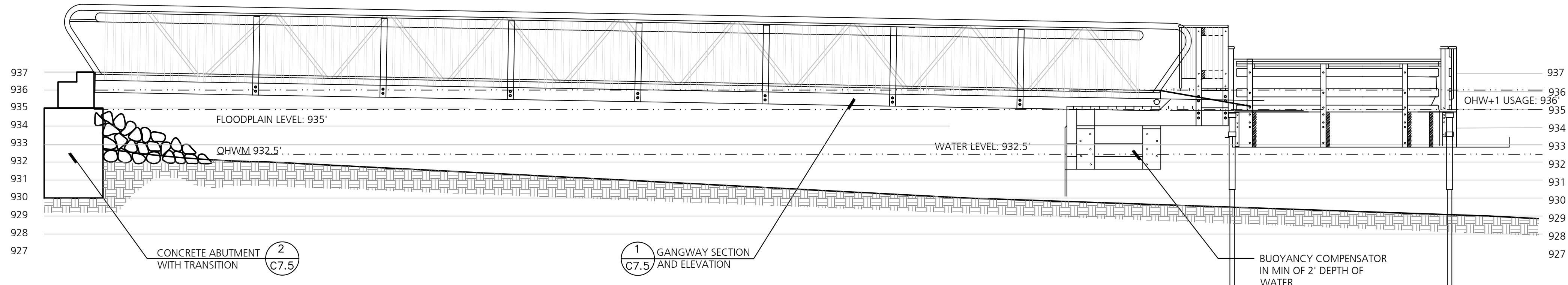
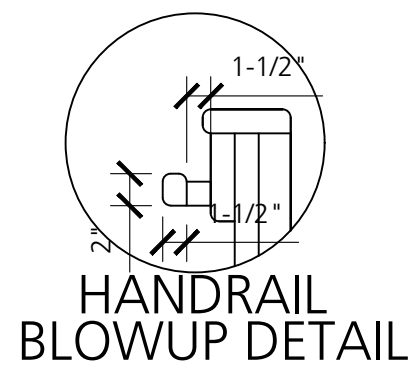
C7.3 SITE DETAILS (4)



PLAN VIEW
SCALE: 1/4" =
1'-0"



RAILING DETAIL
NOT TO SCALE



SIDE ELEVATION
SCALE: 1/4" =
1'-0"



Project Title
**White Lake Twp.
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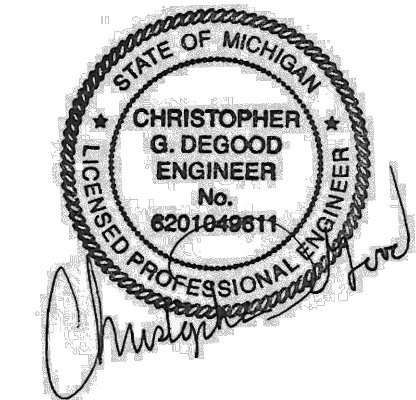
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Quality Control	
Drawn:	MK, LDS
Checked:	LDS, BB
Approved:	BB

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C7.4 SITE DETAILS (5)



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Checked: LDS, B

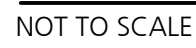
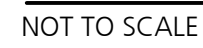
Approved: BB

Project Number

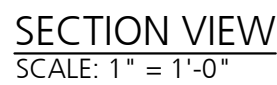
2022024

Sheet Number

C7.5 SITE DETAILS (6)



NO SCALE



NO SCALE

- NOTES:

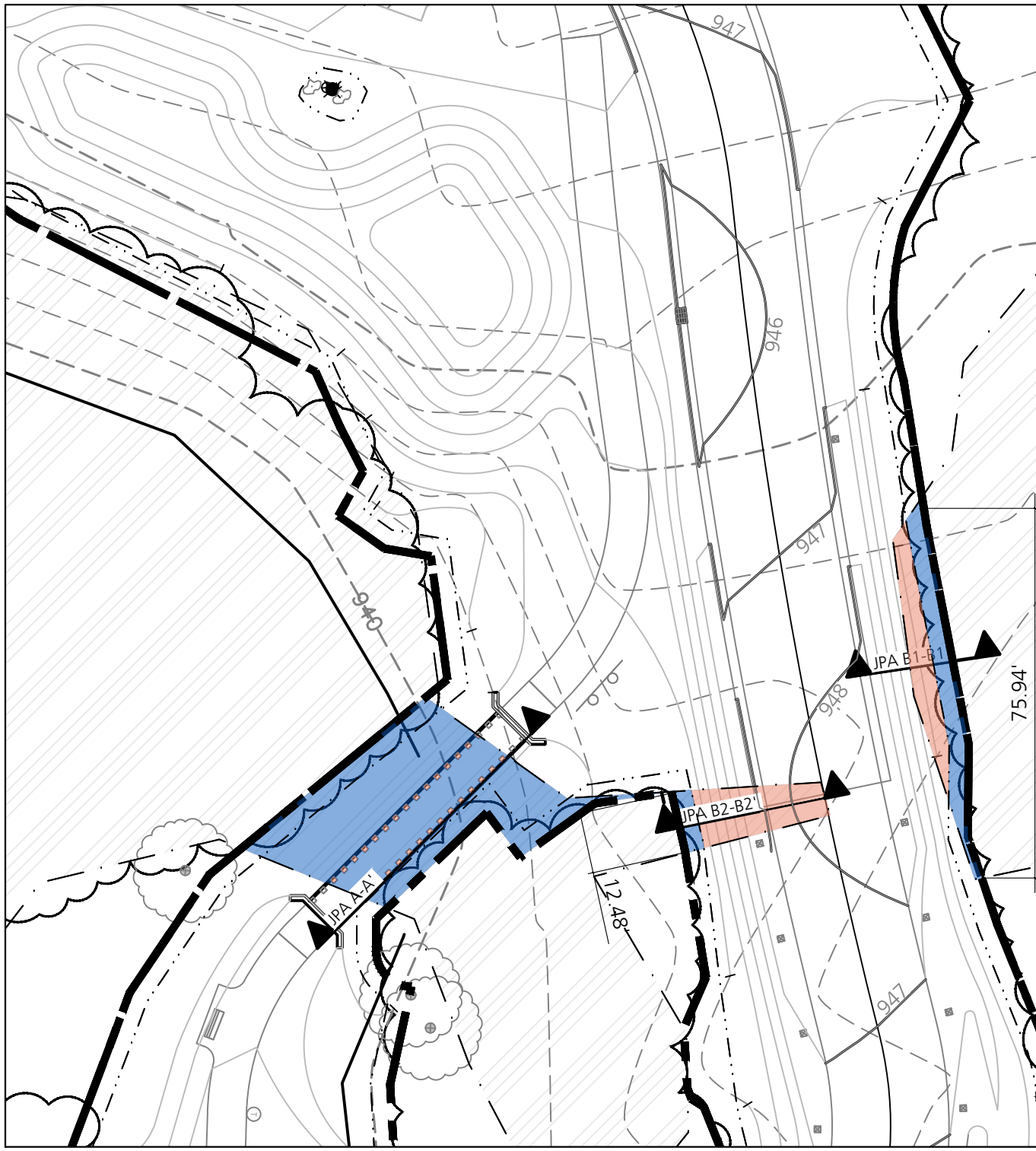
1. THE FISHING PIER SHOWN ON THIS SITE DETAIL SHEET ARE BASED OFF A PIER BY FLATATION DOCKING SYSTEMS, INC. FROM CEDARVILLE, MICHIGAN (906.484.3422). IT IS NOT THE INTENT TO PRECLUDE ANY OTHER FISHING PIER SYSTEMS FROM A DIFFERENT MANUFACTURER. HOWEVER, THEY SHOULD COMPLY WITH THE REQUIRED DESIGN LOADS, DIMENSIONS AND BE CONSTRUCTED WITH THE SPECIFIED MATERIALS AND DETAILS. THEY SHOULD BE OF A QUALITY EQUAL TO OR BETTER THAN THE SPECIFICATIONS PROVIDED.
2. CONCRETE TO BE 5000psi AT 28 DAYS AND AIR ENTRAINED TO 6% +/- 1%. REBAR TO BE GRADE 60 EPOXY COATED BAR.
3. COVER AT UPPER POUR TO BE 1" MIN.
4. REFER TO GEOTECHNICAL REPORT FOR RECOMMENDATIONS ON EXCAVATION AND DEWATERING.



SCALE: 1/4" = 1'-0"



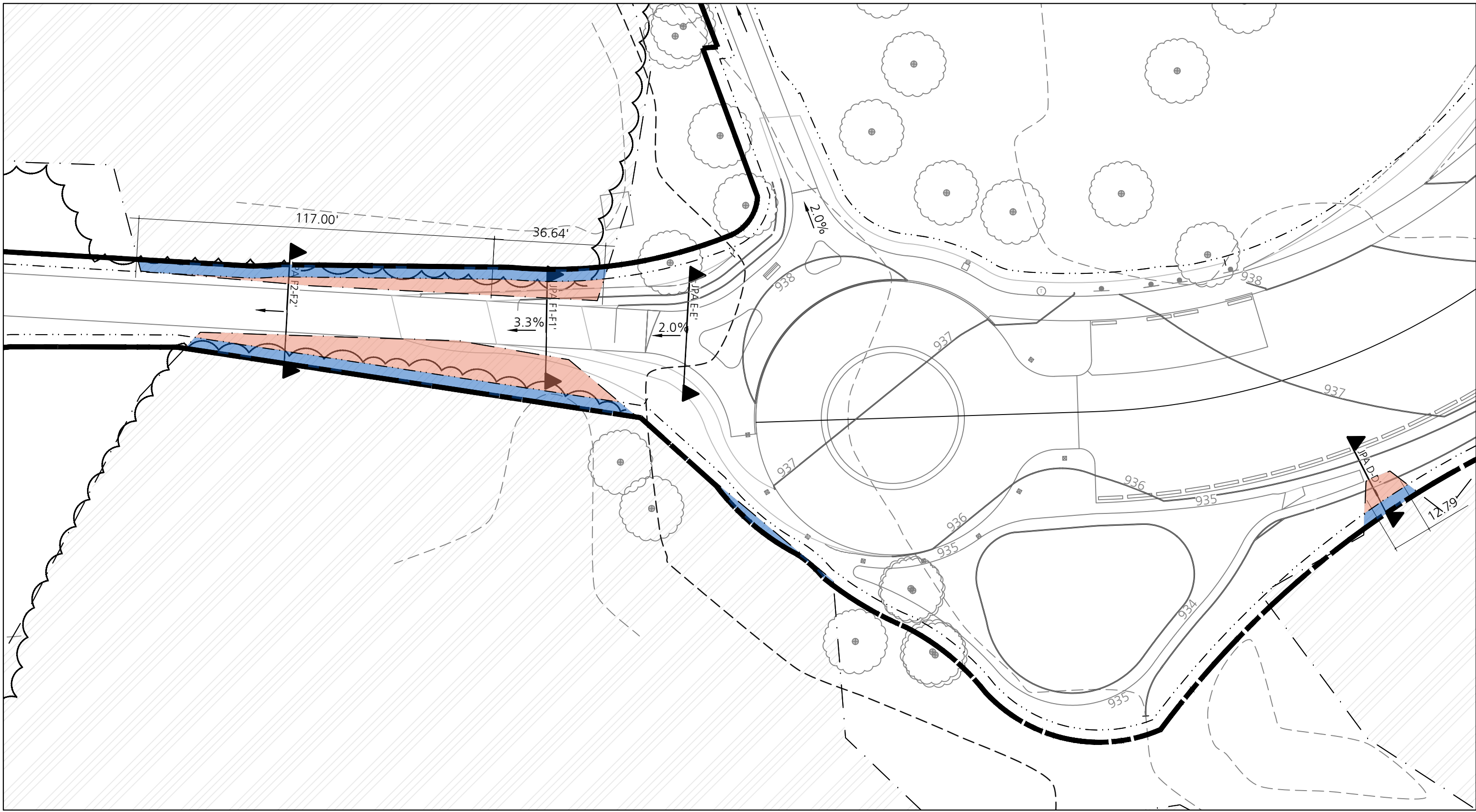
SCALE: 1/4" = 1'-0"



1 WETLAND IMPACT AREAS A-B
NO SCALE



2 WETLAND IMPACTS AREAS D-E
NO SCALE



4 WETLAND IMPACTS AREAS F-G
NO SCALE

PLAN LEGEND, NORTH ARROW, AND SCALE

--- EXISTING WETLAND

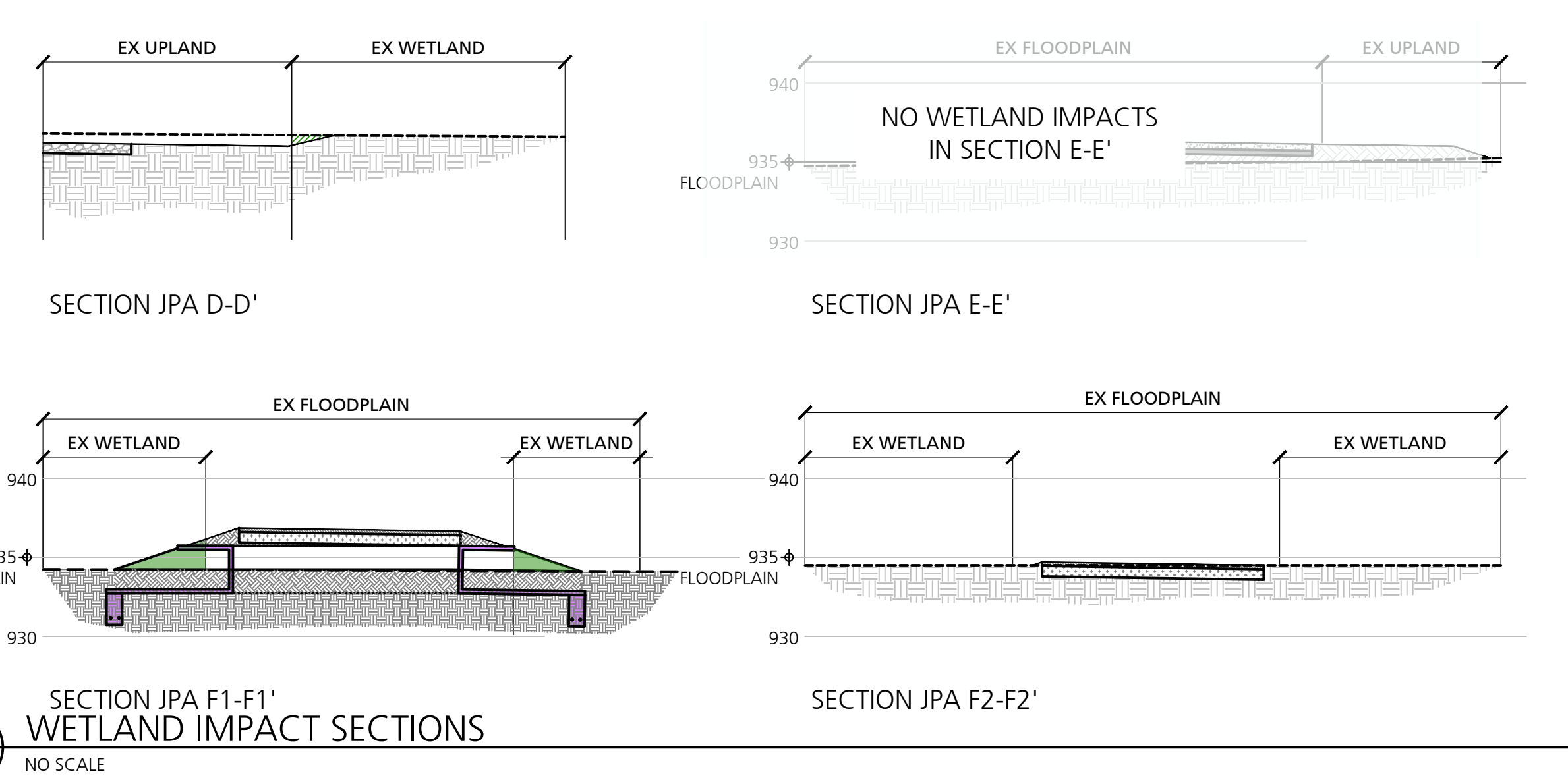
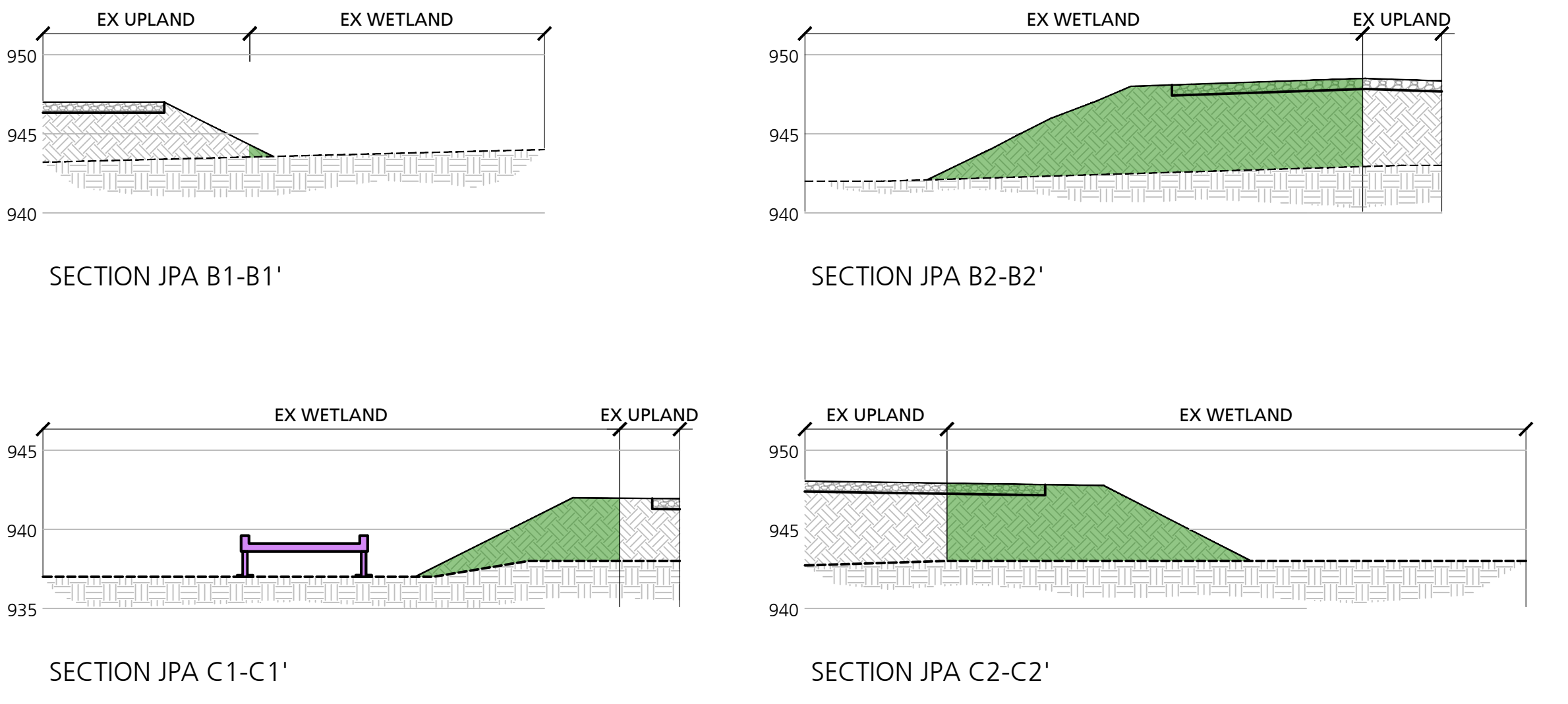
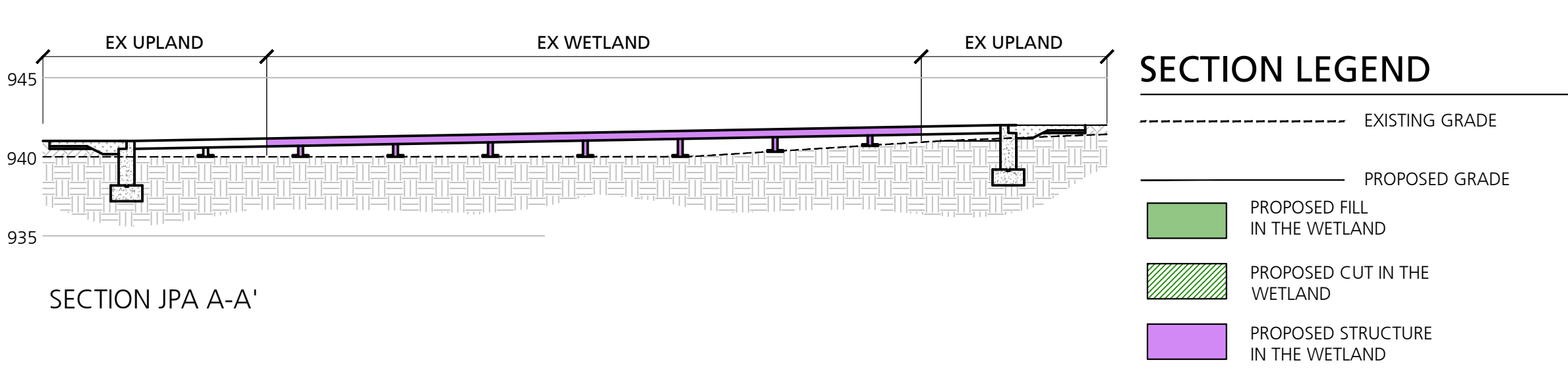
--- EXISTING OHWM

--- PROPOSED LIMIT OF WORK

--- PROPOSED LIMIT OF GRADE

TEMPORARY WETLAND IMPACTS

PERMANENT WETLAND IMPACT



Wetland Impact Summary Table						
Impact Area	Type	Wetland Impact Area (SF)		Fill (CY)	Cut (CY)	Notes
		Temp	Perm			
A	Structure - Boardwalk	1386	29	0	0	Boardwalk Pan Footings sit on top of wetland, see Detail 1, sheet C7.4
	Fill - Access Drive	313	384	59	0	Fill for access drive over culvert equalizer, soil and gravel
	Structure - Northern Wildlife Culvert	-	-	-	-	Wetland equalizer culvert, see detail Detail 1, sheet C8.0
C	Fill - Access Drive	407	2380	418	0	Fill for access drive over wetland culvert equalizer, soil and gravel - Detail 2, sheet C8.0
	Structure - Southern Wildlife Culvert	-	-	-	-	Wetland equalizer culvert, see detail Detail 2, sheet C8.0
	Structure - Boardwalk	1464	247	-	-	Boardwalk Pan Footings sit on top of wetland, see Detail 1, sheet C7.4
D	Other - Cut - Parking Lot	60	42	0	1	Cut for parking lot swale
	Fill - Pathway (Bituminous)	2445	243	16	0	Fill for pathway over culvert equalizer, soil, bituminous paving, limestone
F	Structure - Walkway Wildlife Culvert	-	-	-	-	Wetland equalizer culvert, see Detail 3, sheet C8.0
	Other - Vegetation Removal	-	-	-	-	Veg removal impacts overlap with other impacts are not double-counted in area, total is 8105 sf
Total		6075	3325	493	1	
Total Acres		0.14	0.08			

Wetland Impacts - Calculations							
Section	Fill (SF)	Cut (SF)	Net Fill-Cut (SF)	Section Width	Fill Volume (CY)	Cut Volume (CY)	Net Volume (Net Fill-Dredge Area x Section Width) (CY)
JPA A-A'	0	0	0	8	0	0	0
JPA B1-B1'	1	0	0.6	76	2	0	2
JPA B2-B2'	118	0	118	13	57	0	57
JPA C1-C1'	31	0	31	120	138	0	138
JPA C2-C2'	70	0	70	108	280	0	280
JPA D-D'	0	1	-0.9	13	0	1	0
JPA F1-F1'	9	0	8.3	52	16	0	16
JPA F2-F2'	0	0	0	124	0	0	0

5 WETLAND IMPACT CALCULATIONS
NO SCALE

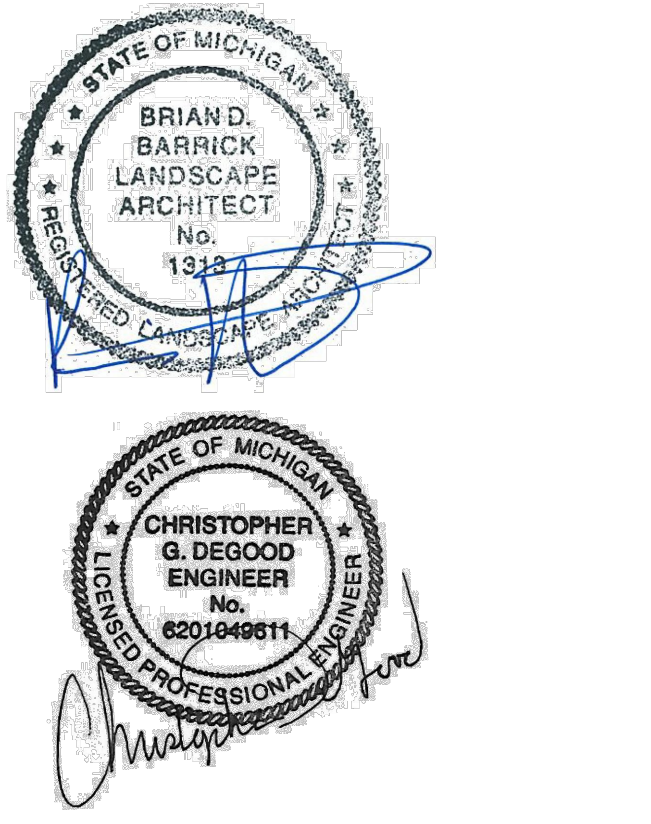
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Stanley Park
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Quality Control

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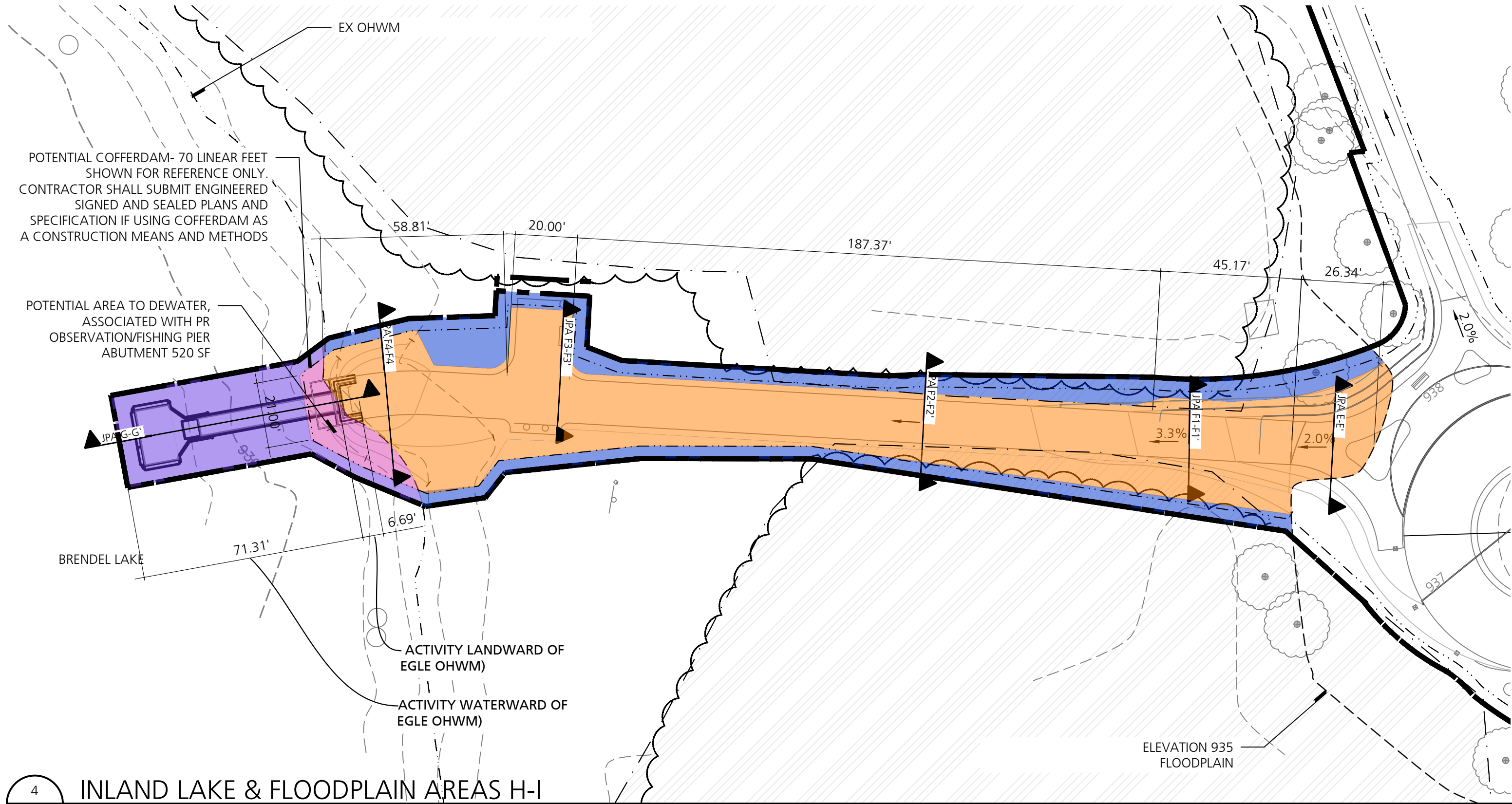
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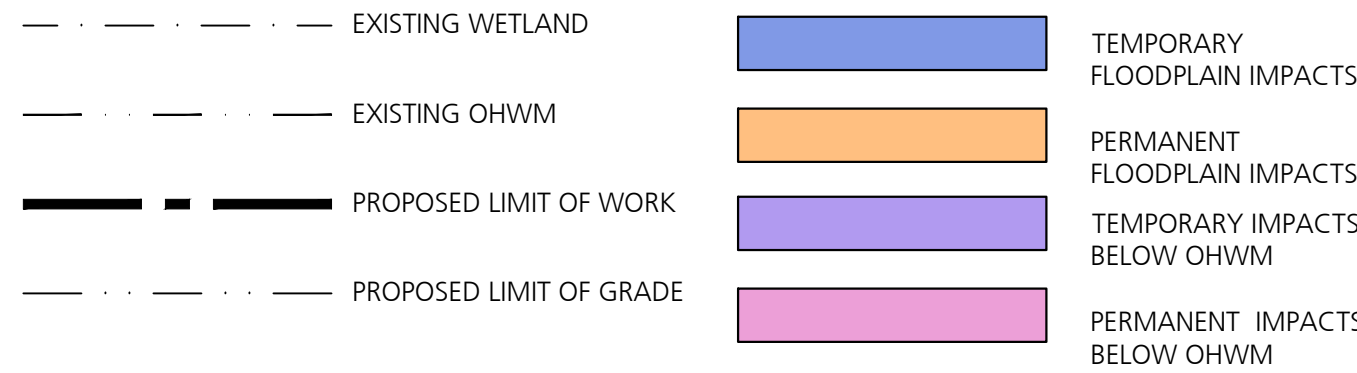
Sheet Number

C7.6 JPA PERMIT - WETLAND IMPACTS



4 INLAND LAKE & FLOODPLAIN AREAS H-I
NO SCALE

PLAN LEGEND, NORTH ARROW, AND SCALE



Floodplain Impact Summary Table						
Impact Area	Type	Floodplain Impact Area (SF)		Fill (CY)	Cut (CY)	Notes
		Temp	Perm			
E	Fill - Pathway (Concrete)	190	875	35	0	Fill for pathway ramping down to lake access
F	Fill - Pathway (Bitmonious)	3439	8648	332	95	Fill for pathway over culvert equalizer, soil,bitmonious paving, limestone
	Structure - Abutment	-	43	12	-	Structure is approx 6 ft deep, 3 ft wide, and 31 ft long. and is 60% in floodplain, see detail 2/C7.6
All	Vegetation Removal	-	-	-	-	Veg removal impacts overlap with other impacts are are not double-counted in area
Total		3629	9566	380	95	
Total Acres		0.08	0.22			

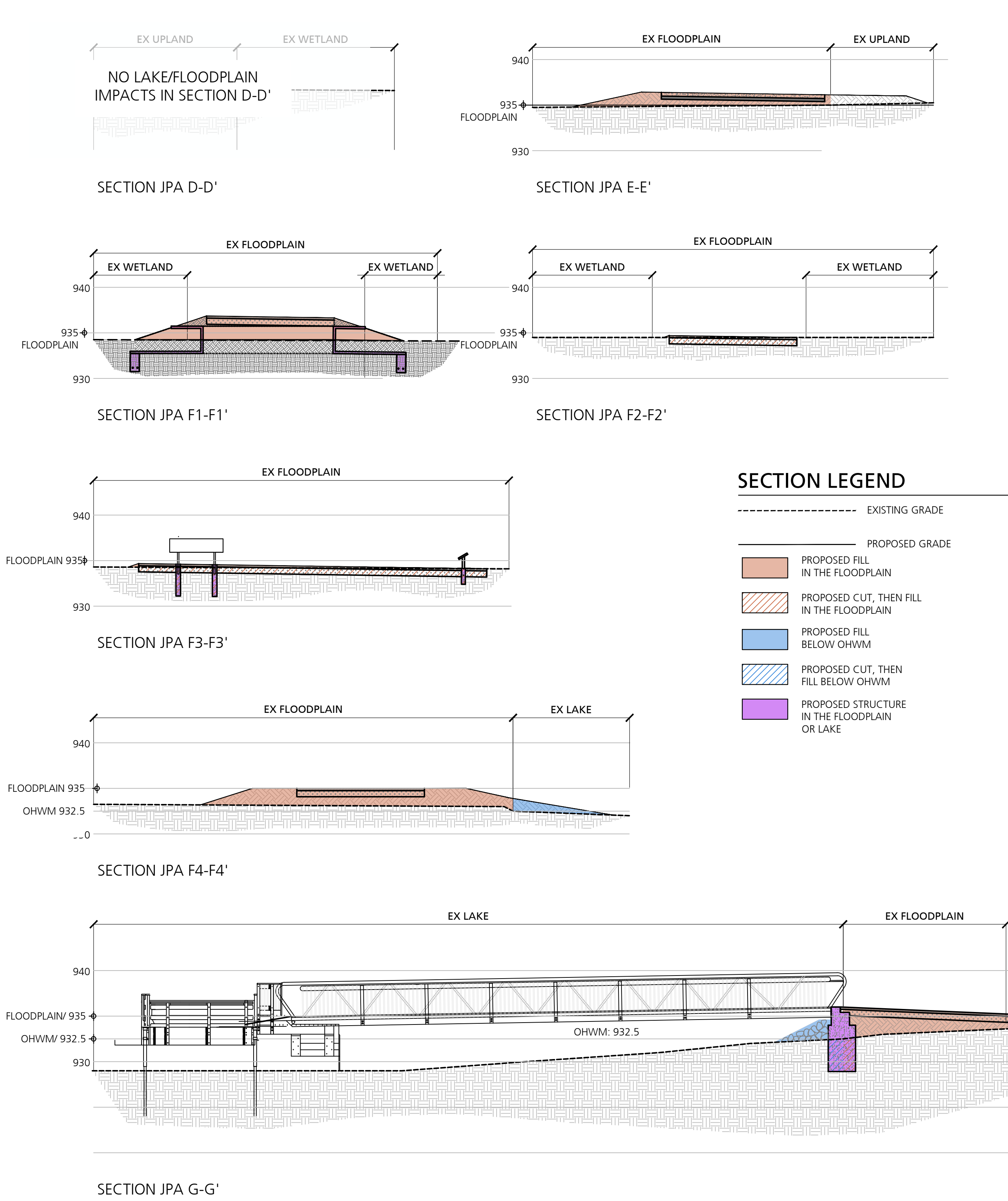
Floodplain Impacts Calculationss							
Section	Fill (SF)	Cut (SF)	Net Fill-Cut (SF)	Section Width	Fill Volume (CY)	Dredge Volume (CY)	Net Volume (Net Fill-Dredge Area x Section Width) (CY)
JPA E-E'	35	0	35	27	35	0	35
JPA F1-F1'	56	0	56	45	93	0	93
JPA F2-F2'	13	11	1.6	187	89	78	11
JPA F3-F3'	34	22	11.6	20	25	16	9
JPA F4-F4'	57	0	57	59	125	0	125

5 FLOODPLAIN IMPACTS CALCULATIONS
NO SCALE

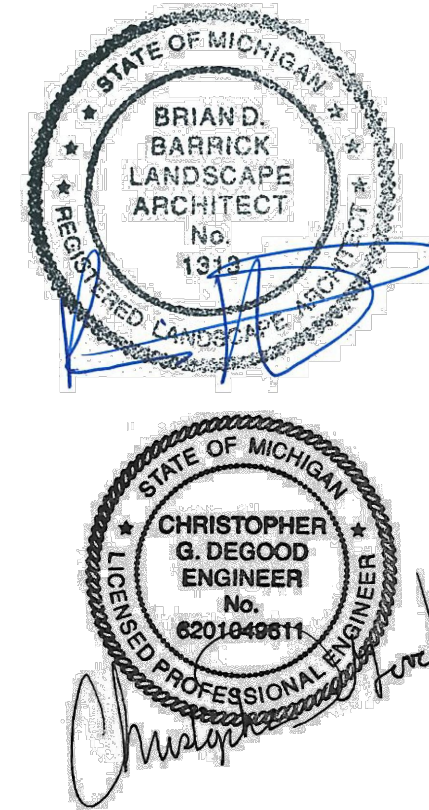
Lake Impacts Summary Table						
Impact Area	Type	Lake Impact Area (SF)		Fill (CY)	Cut (CY)	Notes
		Temp	Perm			
F	Fill - Grading at Abutment	2015	404	17	0	Fill for pathway ramping up to abutment, soil,bitmonious paving, limestone
G	Fill - Rip Rap	0	90	8	6	Abutment protection
	Structure - Abutment	0	26	8	0	Structure is approx 6 ft deep, 3 ft wide, and 31 ft long. and is 40% in lake
Total		2015	520	33	6	

Lake Impacts - Calculations							
Section	Fill (SF)	Cut (SF)	Net Fill-Cut (SF)	Section Width	Fill Volume (CY)	Dredge Volume (CY)	Net Volume (Net Fill-Dredge Area x Section Width) (CY)
JPA F4-F4'	7.6	0	7.6	59	17	0	17
JPA G-G'	8	6	2	27	8	6	2

5 LAKE IMPACTS CALCULATIONS
NO SCALE

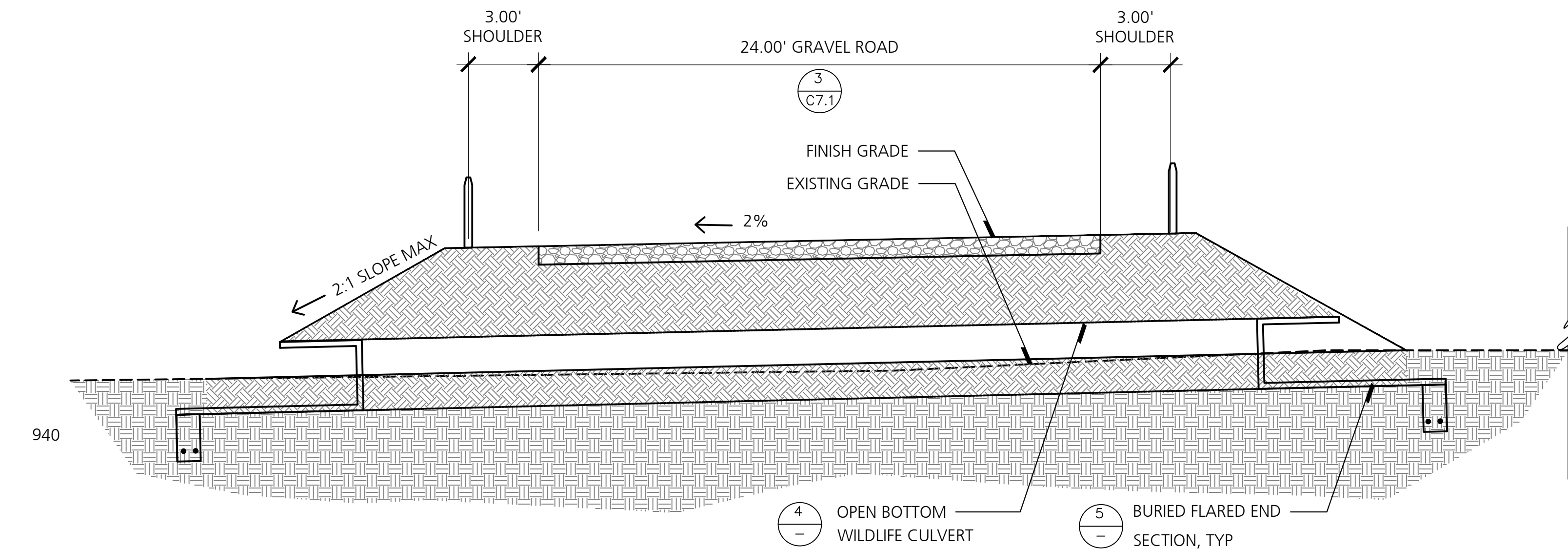


5 LAKE & FLOODPLAIN IMPACT SECTIONS
NO SCALE

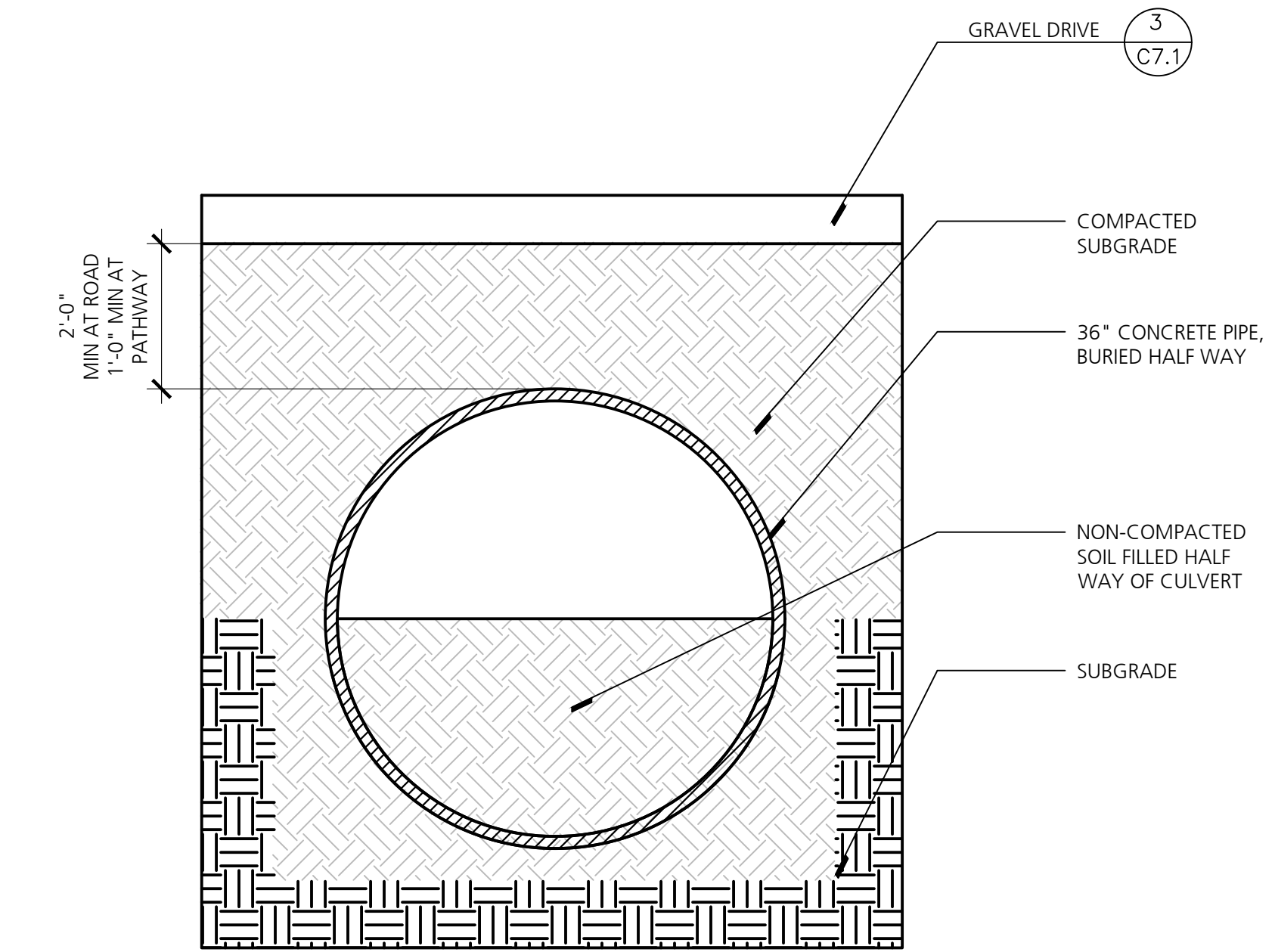


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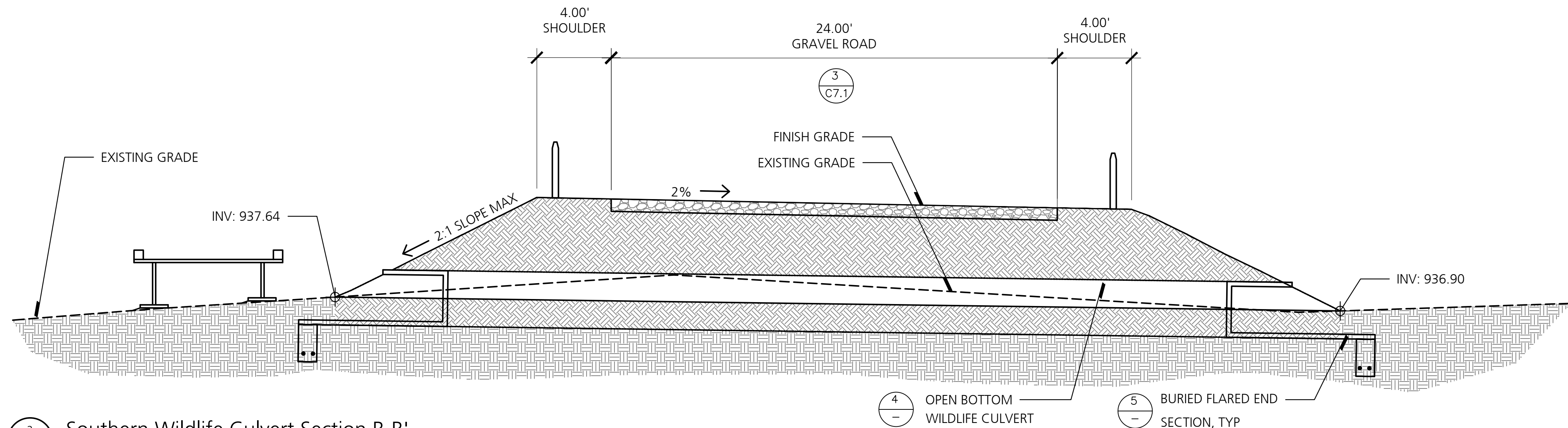
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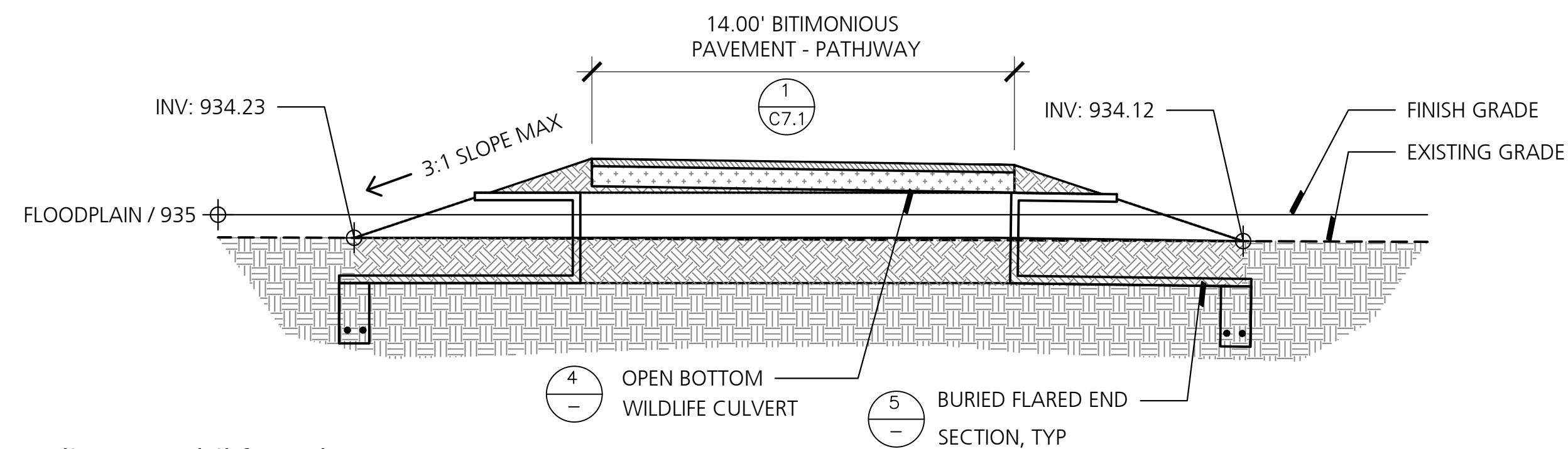
1 Northern Wildlife Culvert Section A-A'
NO SCALE



4 Open Bottom Wildlife Culvert
NO SCALE

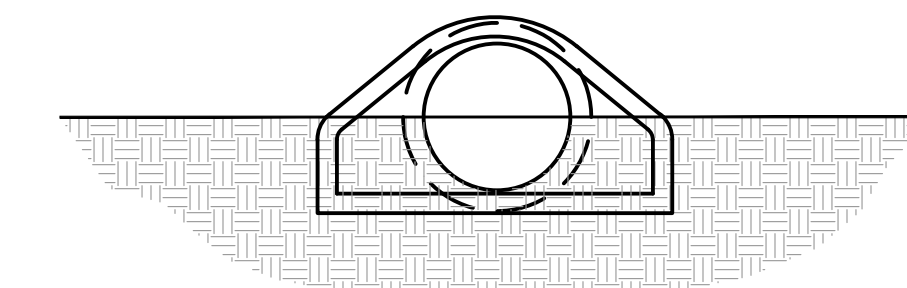


2 Southern Wildlife Culvert Section B-B'
NO SCALE

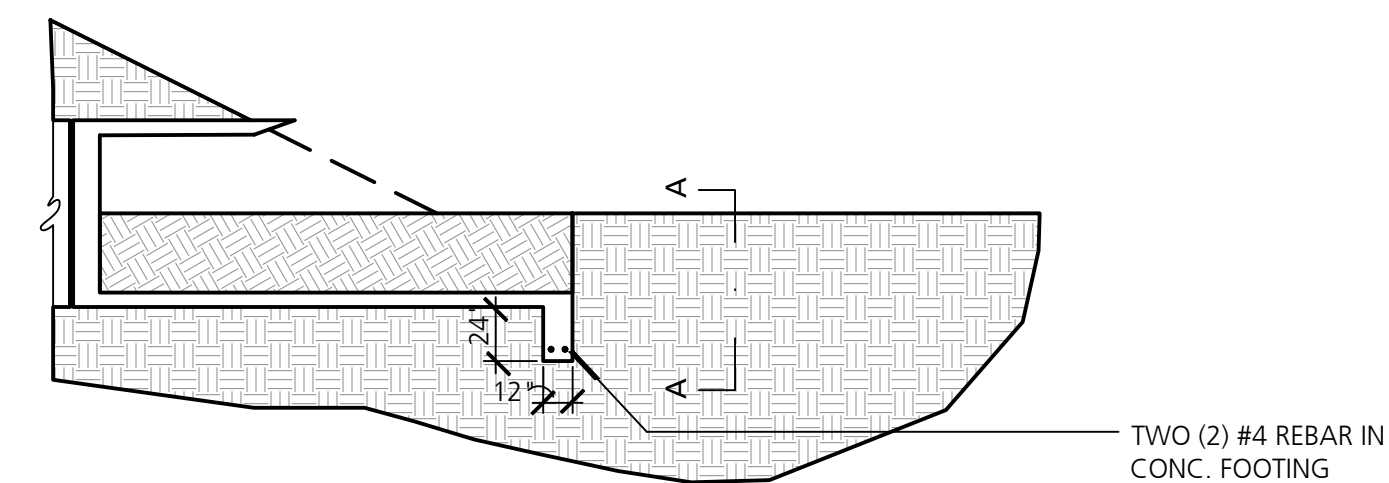


3 Walkway Wildlife Culvert Section A-A'
NO SCALE

NOTES:
1. BAR GRATE IS REQUIRED AT ALL END SECTIONS, 18" DIA. OR LARGER.
2. END SECTIONS ARE ALL TO BE R.C.P., CLASS IV.
3. USE #6 VERTICAL AND #8 HORIZONTAL REBAR.



SECTION A-A'



LONGITUDINAL SECTION

5 Buried Flared End Section
NO SCALE

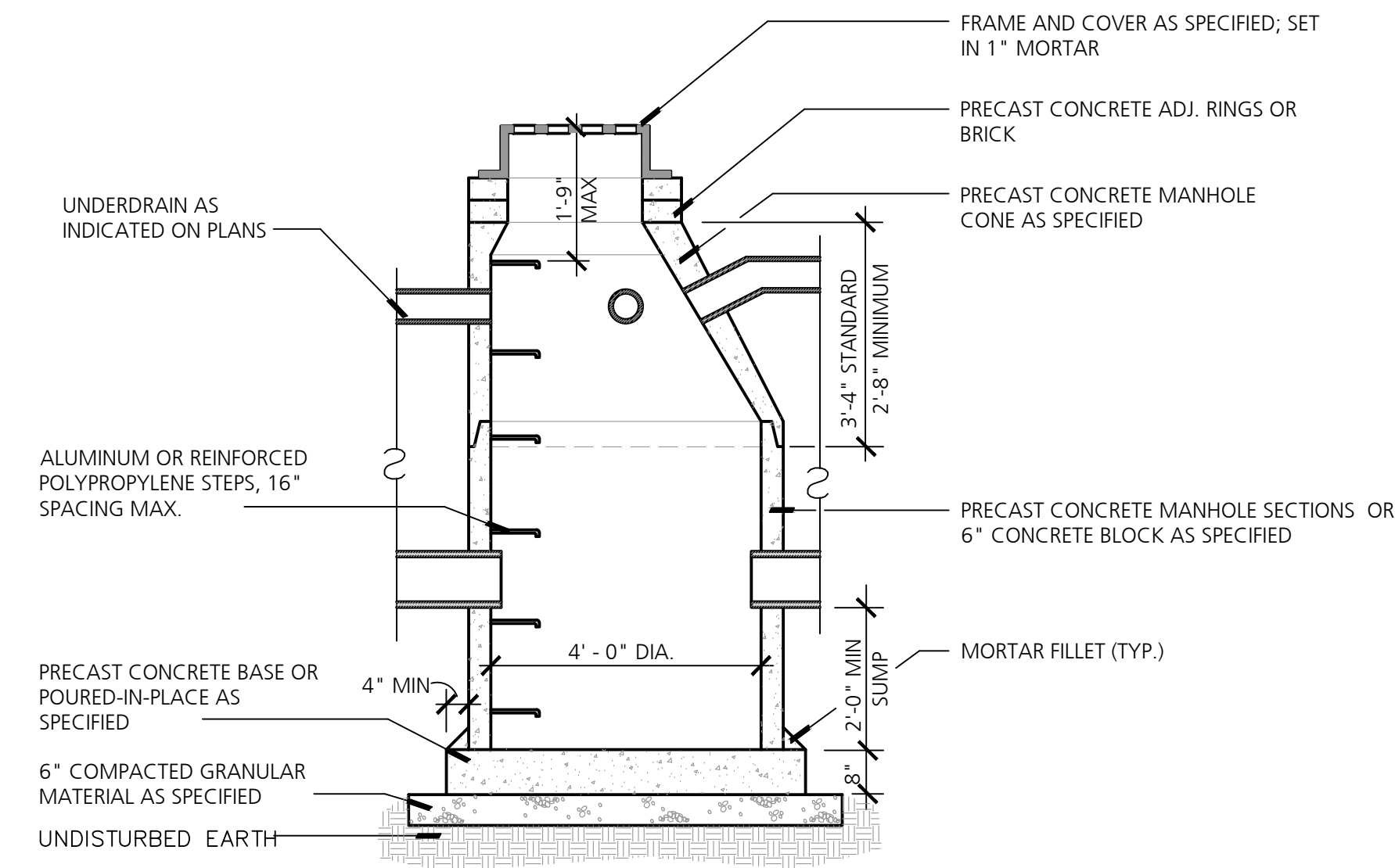


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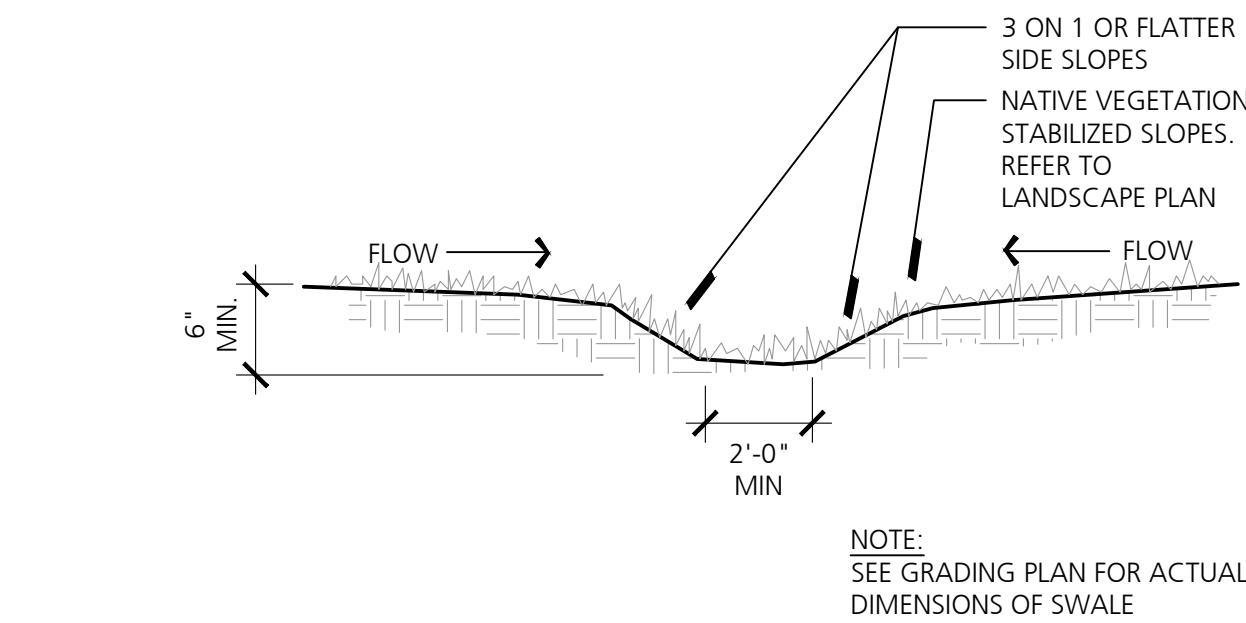
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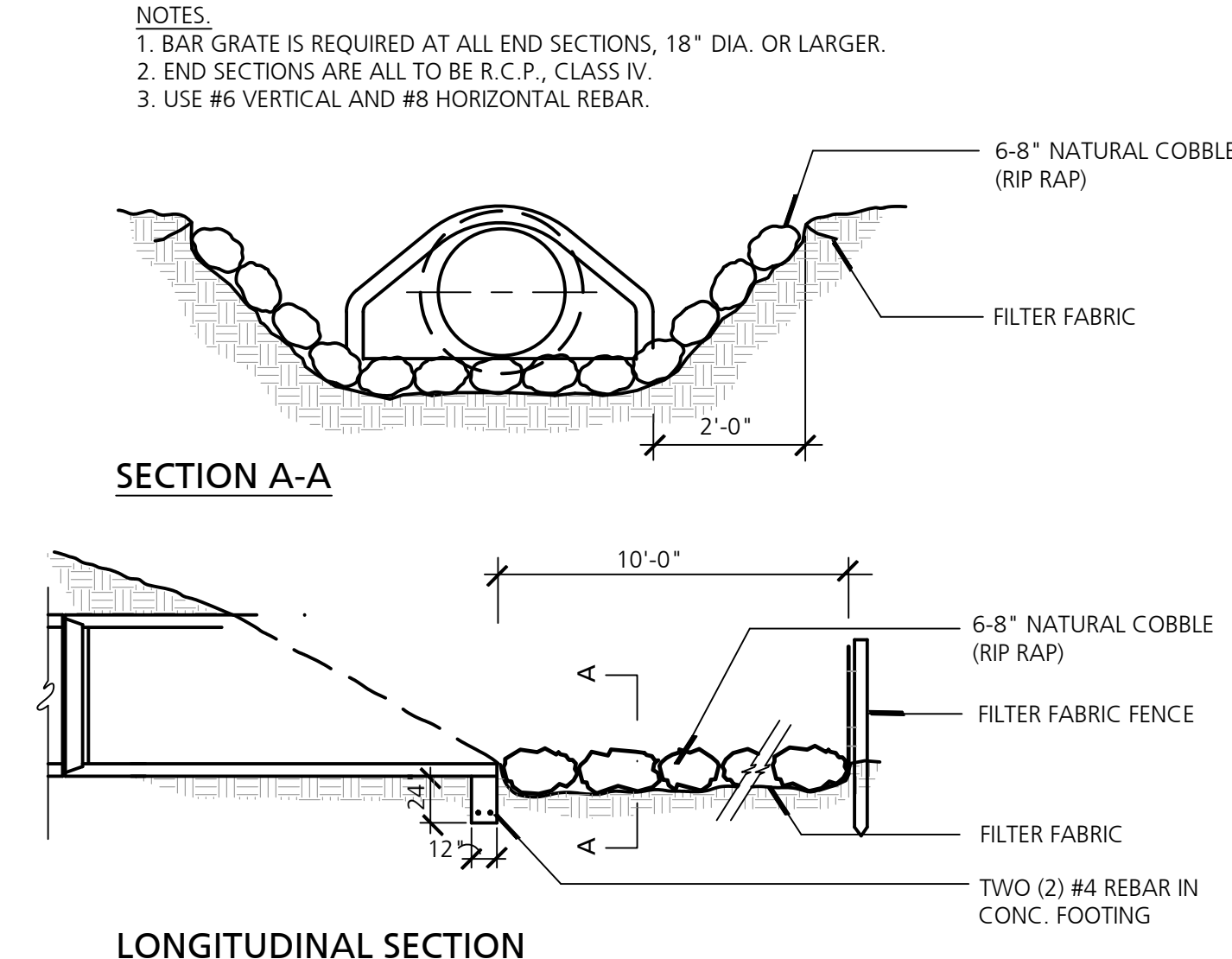
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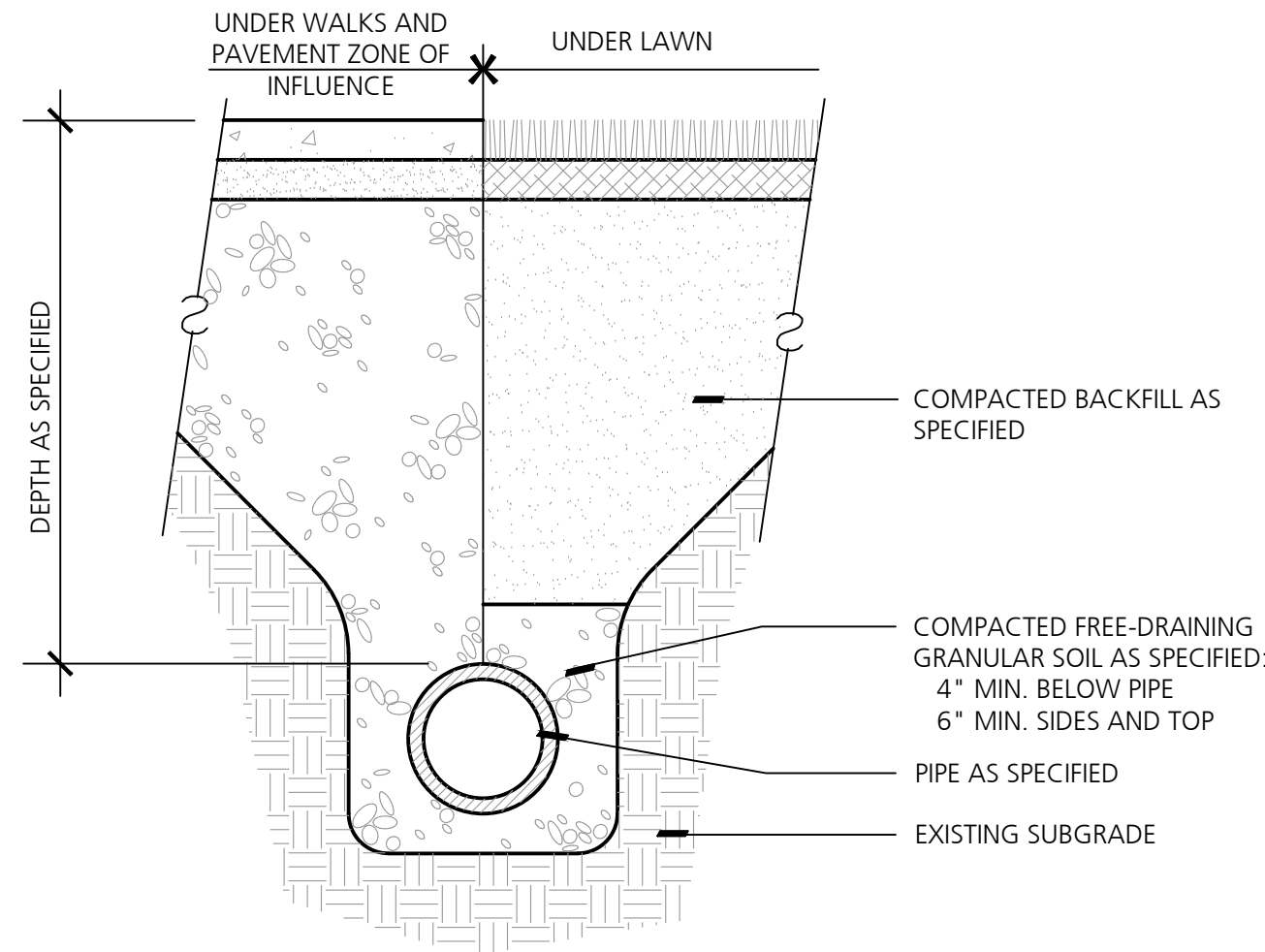
1 Catch Basin
NOT TO SCALE



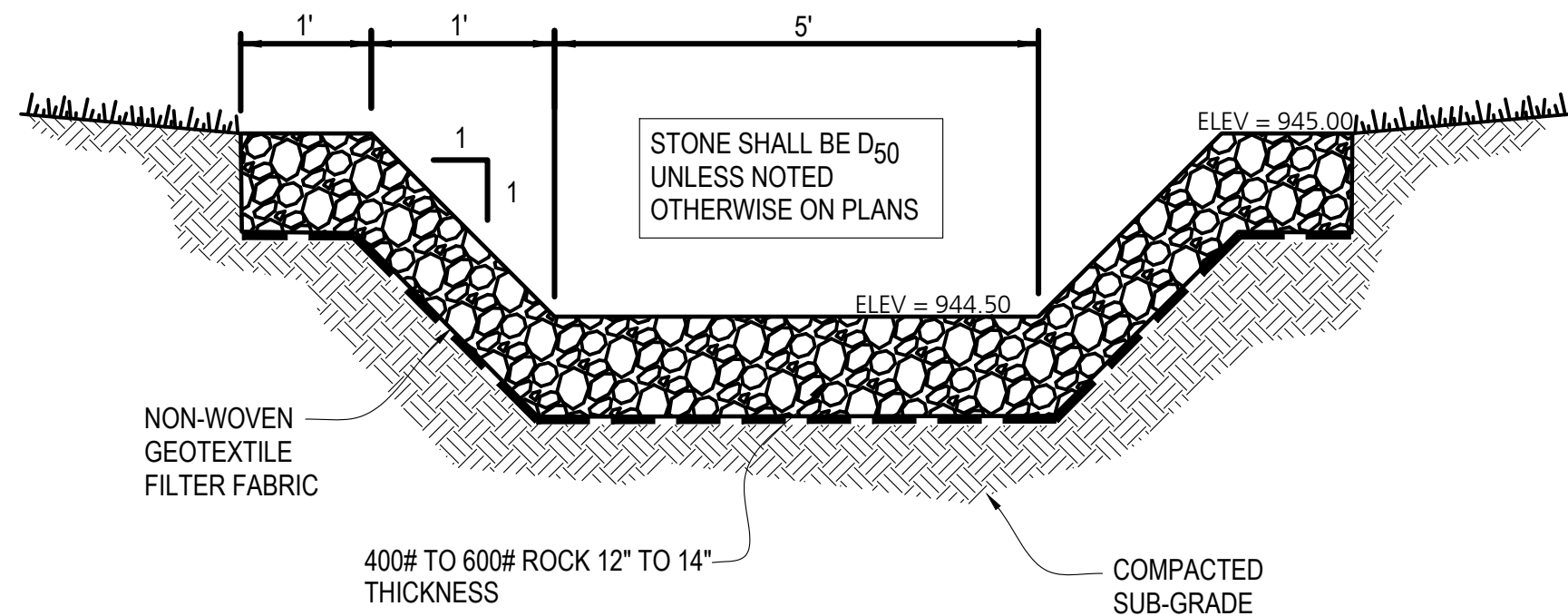
2 Vegetated Swale
NOT TO SCALE



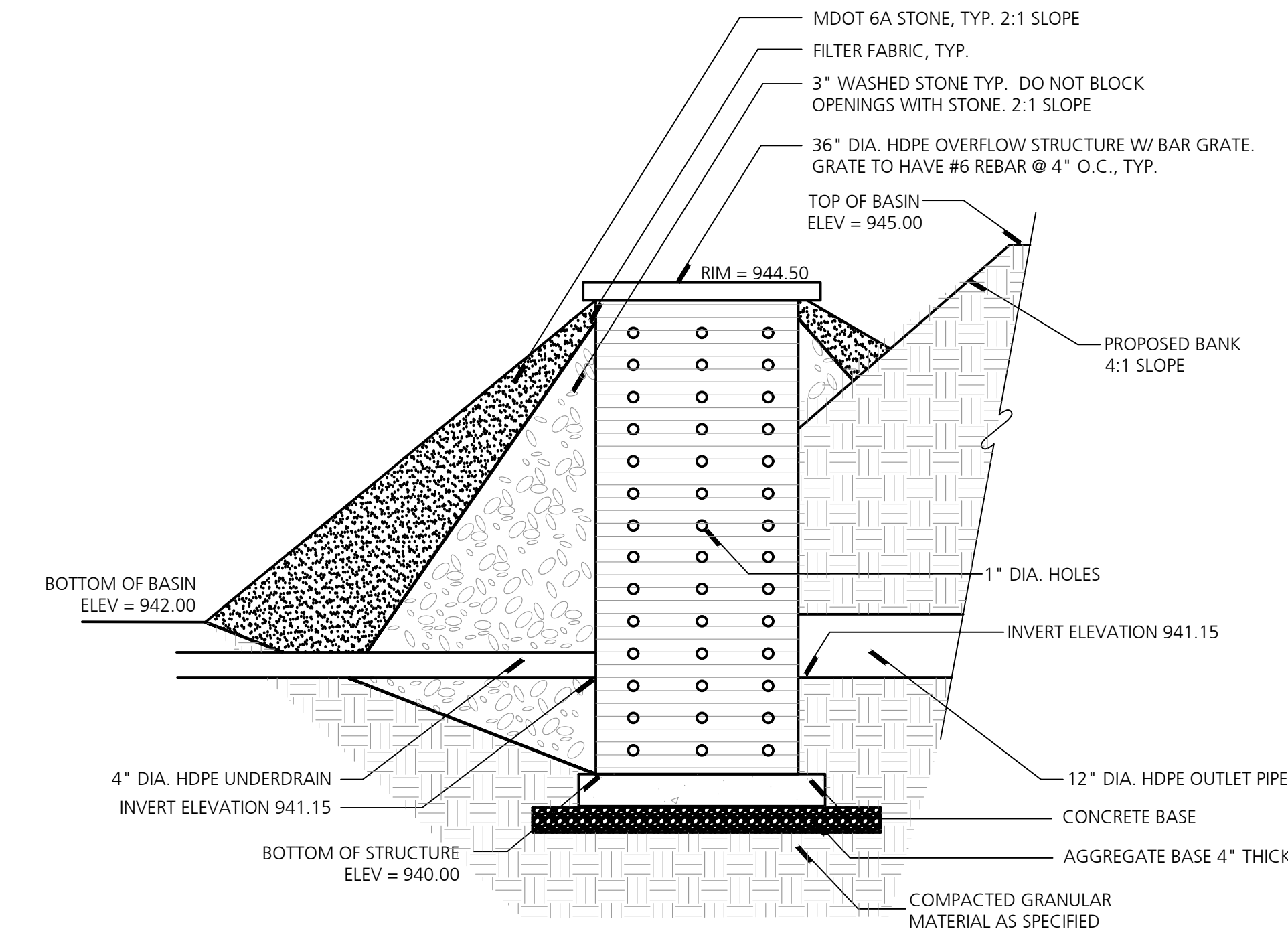
3 Flared End Section
NO SCALE



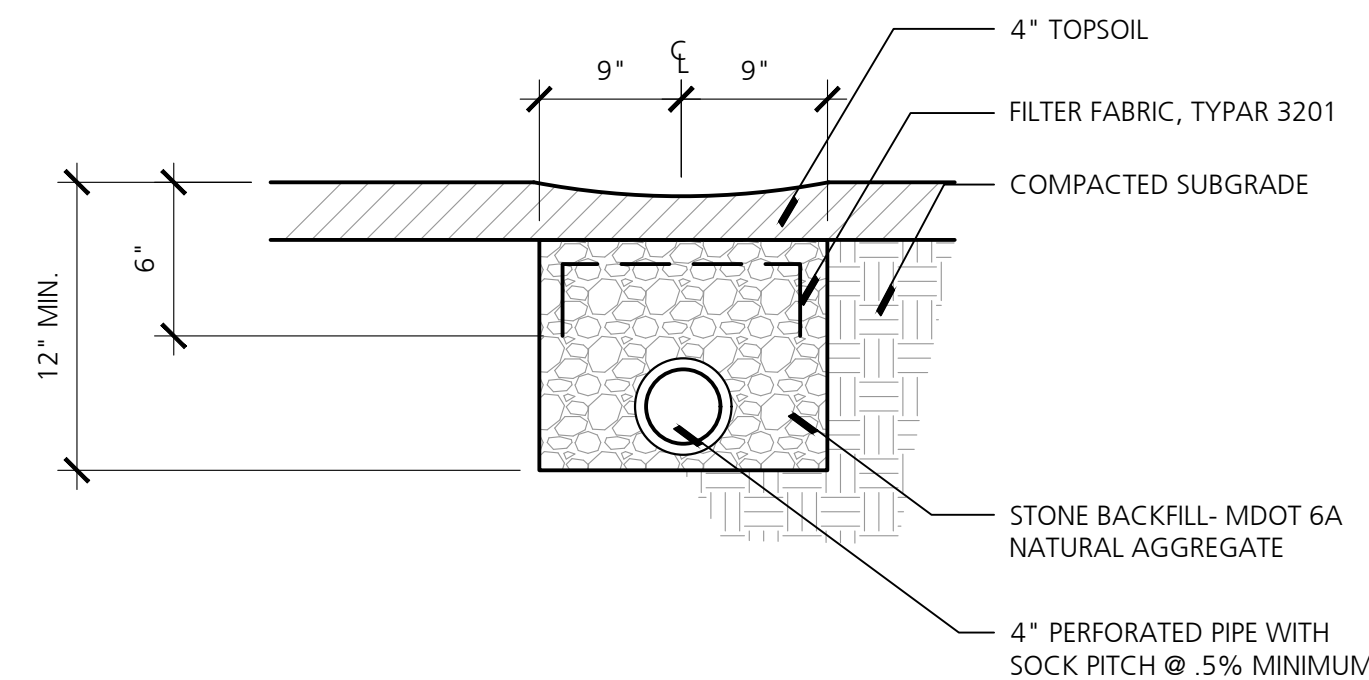
4 Trench Detail
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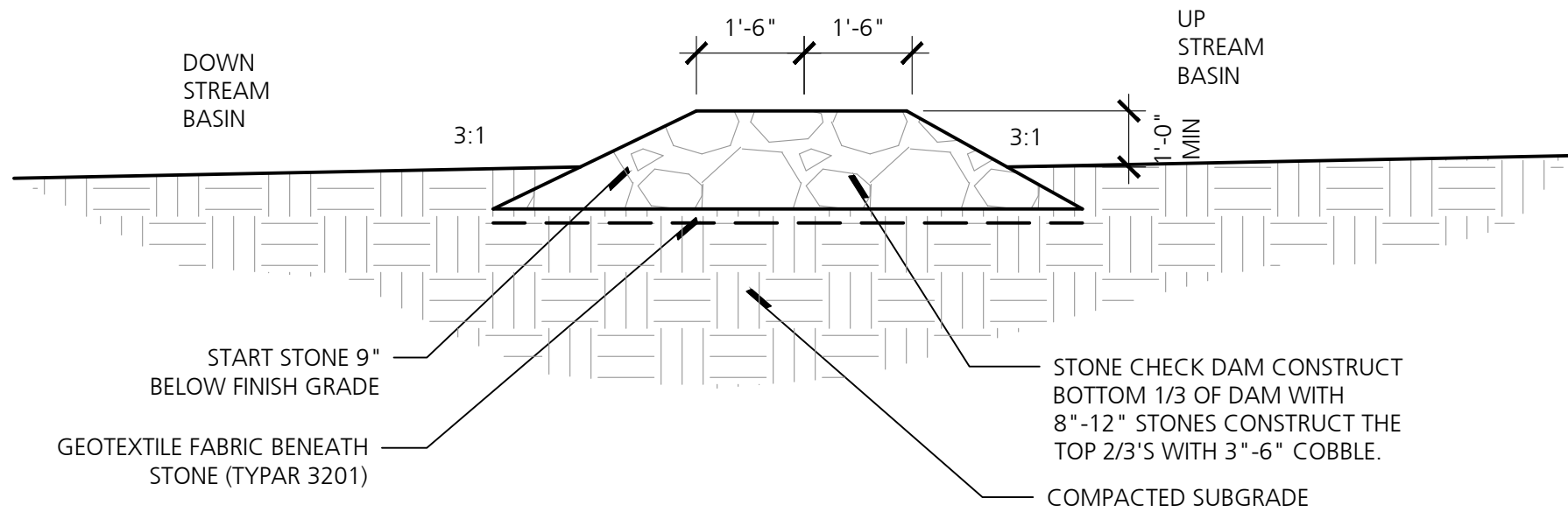
5 Basin Overflow Spillway
NO SCALE



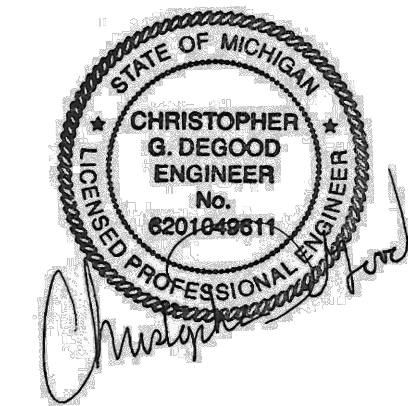
6 Sediment Basin Outlet Control Structure
NO SCALE



7 Underdrain Drain
NO SCALE



8 Section Stone Check Dam
NO SCALE



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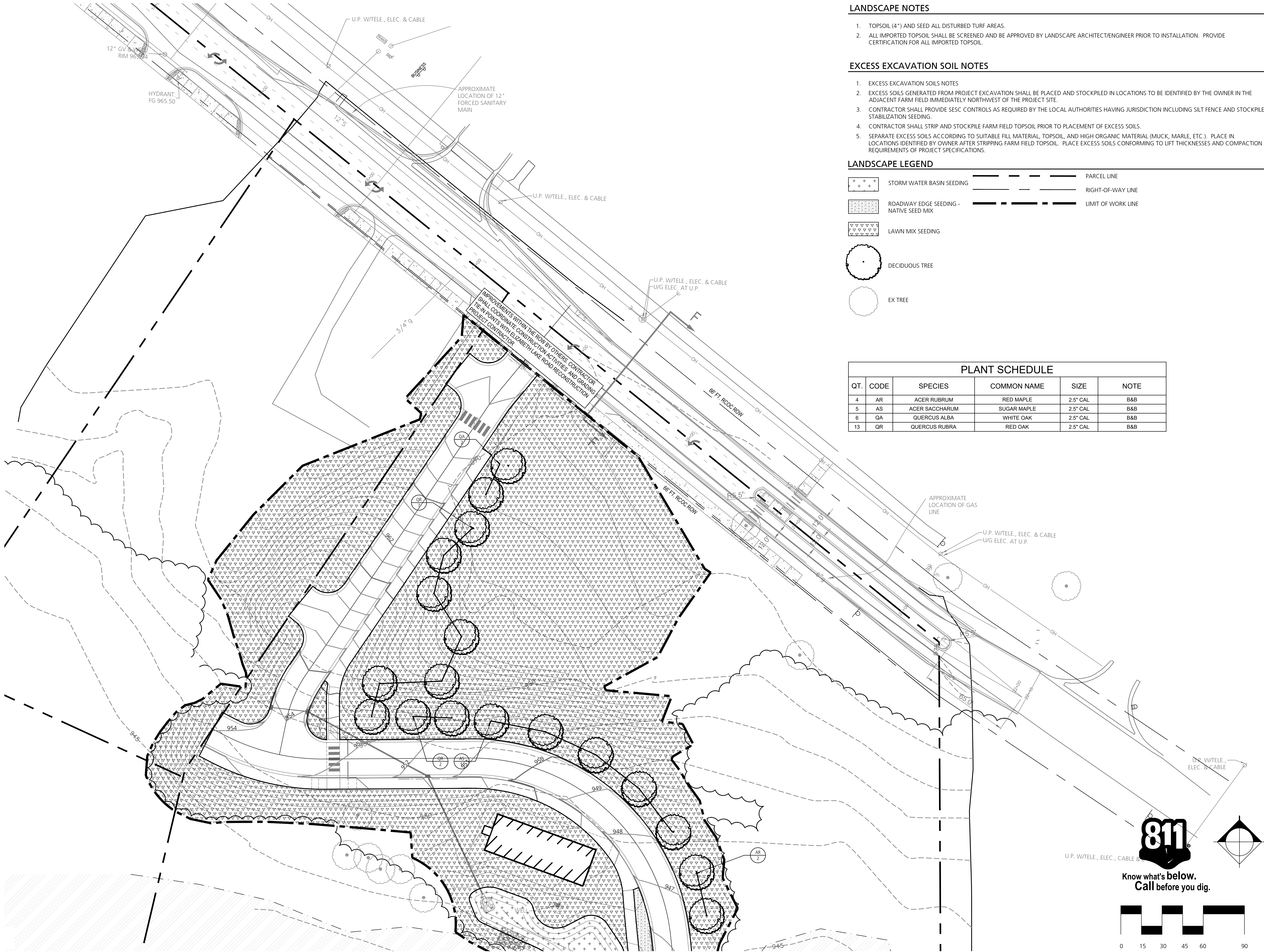
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Sheet Number

C8.1 UTILITY DETAILS (2)



LANDSCAPE NOTES

1. TOPSOIL (4") AND SEED ALL DISTURBED TURF AREAS.
2. ALL IMPORTED TOPSOIL SHALL BE SCREENED AND BE APPROVED BY LANDSCAPE ARCHITECT/ENGINEER PRIOR TO INSTALLATION. PROVIDE CERTIFICATION FOR ALL IMPORTED TOPSOIL.

EXCESS EXCAVATION SOIL NOTES

1. EXCESS EXCAVATION SOILS NOTES
2. EXCESS SOILS GENERATED FROM PROJECT EXCAVATION SHALL BE PLACED AND STOCKPILED IN LOCATIONS TO BE IDENTIFIED BY THE OWNER IN THE ADJACENT FARM FIELD IMMEDIATELY NORTHWEST OF THE PROJECT SITE.
3. CONTRACTOR SHALL PROVIDE SESC CONTROLS AS REQUIRED BY THE LOCAL AUTHORITIES HAVING JURISDICTION INCLUDING SILT FENCE AND STOCKPILE STABILIZATION SEEDING.
4. CONTRACTOR SHALL STRIP AND STOCKPILE FARM FIELD TOPSOIL PRIOR TO PLACEMENT OF EXCESS SOILS.
5. SEPARATE EXCESS SOILS ACCORDING TO SUITABLE FILL MATERIAL, TOPSOIL, AND HIGH ORGANIC MATERIAL (MUCK, MARLE, ETC.). PLACE IN LOCATIONS IDENTIFIED BY OWNER AFTER STRIPPING FARM FIELD TOPSOIL. PLACE EXCESS SOILS CONFORMING TO LIFT THICKNESSES AND COMPACTION REQUIREMENTS OF PROJECT SPECIFICATIONS.

LANDSCAPE LEGEND

+++

STORM WATER BASIN SEEDING

ROADWAY EDGE SEEDING - NATIVE SEED MIX

LAWN MIX SEEDING

DECIDUOUS TREE

EX TREE

PARCEL LINE

RIGHT-OF-WAY LINE

LIMIT OF WORK LINE

PLANT SCHEDULE

QT.	CODE	SPECIES	COMMON NAME	SIZE	NOTE
4	AR	ACER RUBRUM	RED MAPLE	2.5" CAL	B&B
5	AS	ACER SACCHARUM	SUGAR MAPLE	2.5" CAL	B&B
6	QA	QUERCUS ALBA	WHITE OAK	2.5" CAL	B&B
13	QR	QUERCUS RUBRA	RED OAK	2.5" CAL	B&B

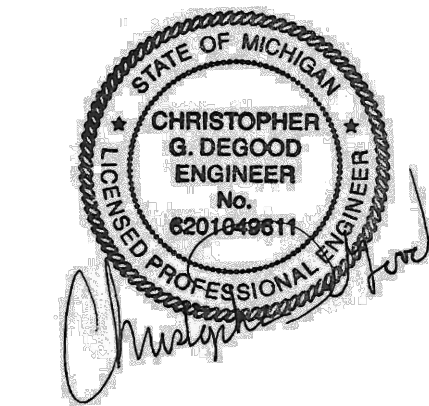
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L1.0 LANDSCAPE PLAN -
AREA A

SEE LANDSCAPE PLAN NOTES AND LEGENDS CAN BE FOUND ON L1.0

MATCH LINE L1.0

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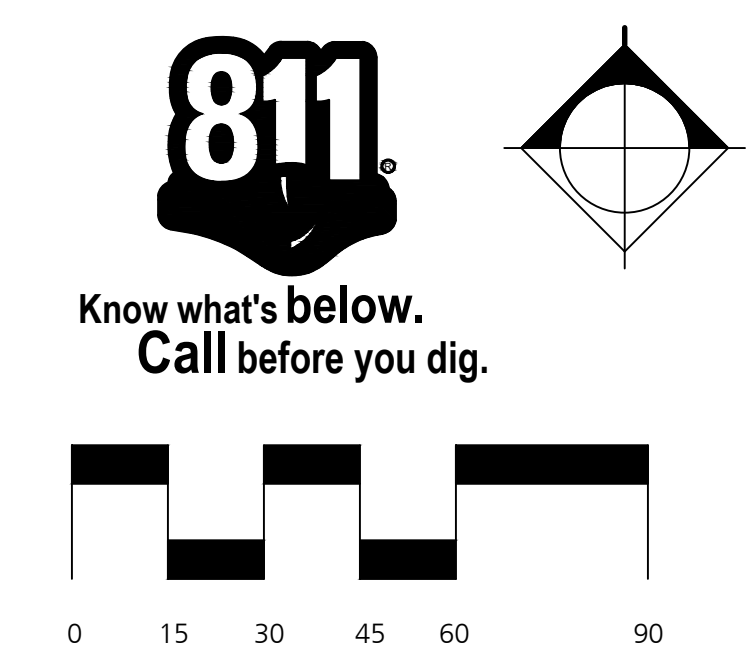
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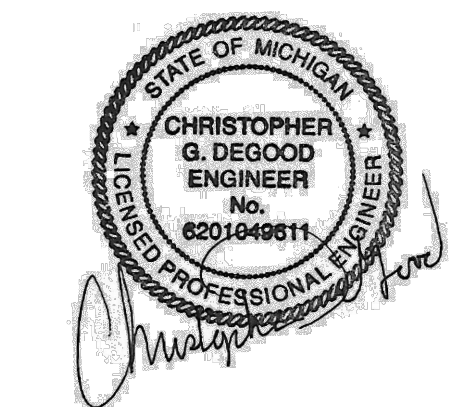
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**L1.1 LANDSCAPE PLAN -
AREA B**

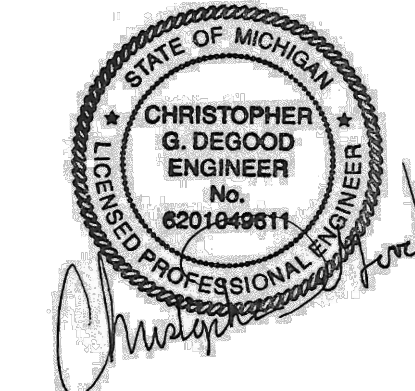
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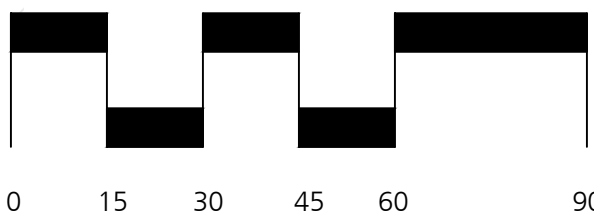
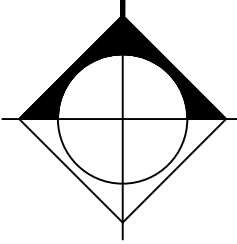
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Approved: BB

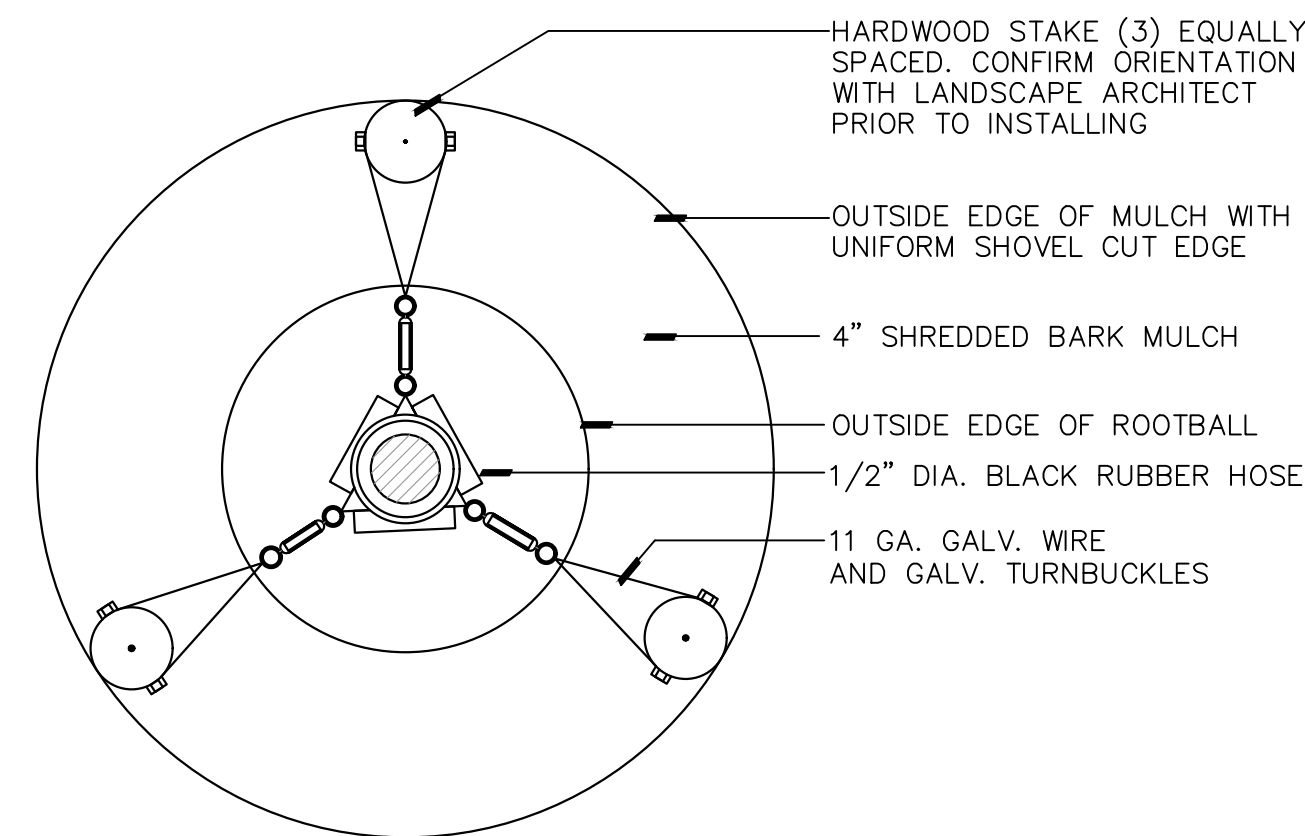
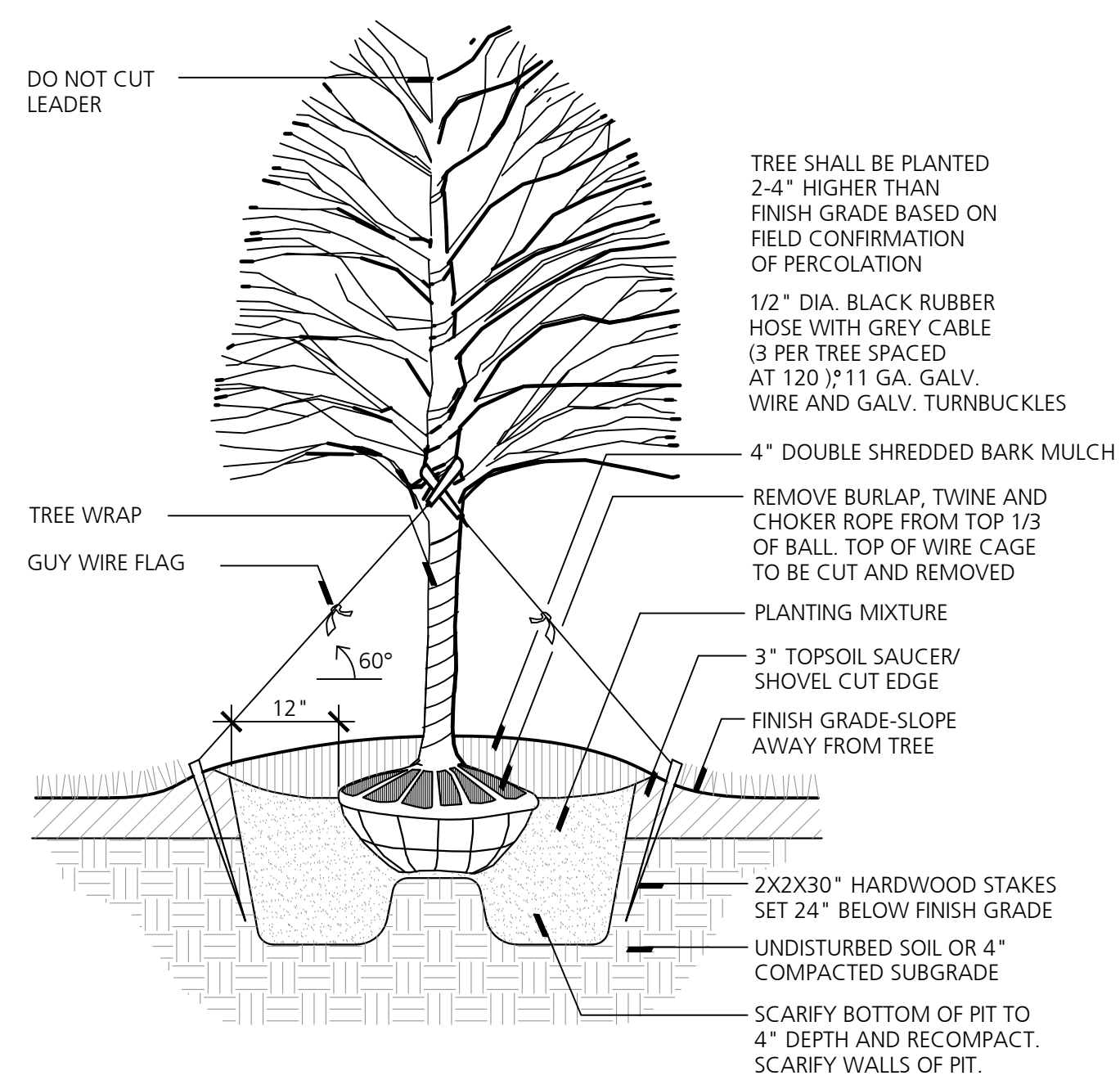
Project Number

2022024

Sheet Number

L1.2 LANDSCAPE PLAN -
AREA C





Deciduous Tree Planting

NO SCALE

2 Tree Staking

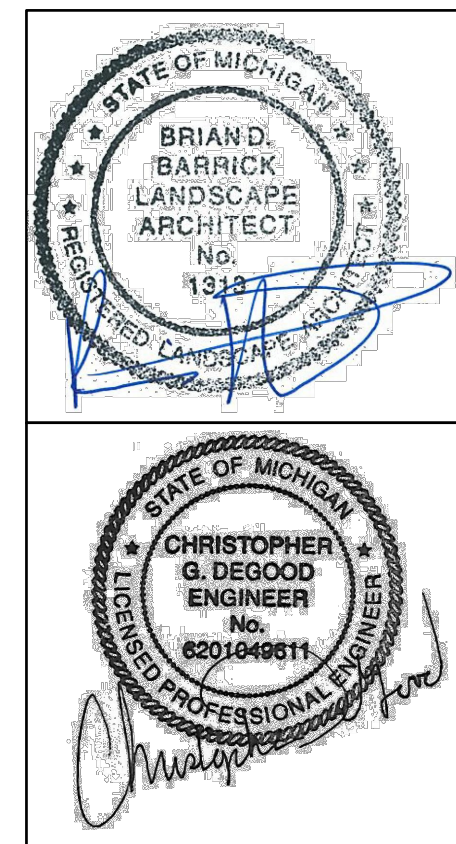
NOT TO SCALE



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Consultants



Seal

Project Title

White Lake Twp.
Stanley Park
Phase 1 Implementation
MDNR Project No. 26-01868

White Lake Township, MI

Sheet Title

Dates

Dates	Issued for
12.14.2022	DRAFT DESIGN DEVELOPMENT
01.06.2023	DESIGN DEVELOPMENT
03.10.2023	JOINT PERMIT APPLICATION
03.31.2023	MDNR PRE-BID REVIEW
05.31.2023	MDNR PRE-BID REVIEW
06.15.2023	BIDDING

Scale

Quality Control

Drawn: MK, LDS

Checked: LDS, BB

Approved: BB

Project Number

2022024

Sheet Number