

ROUGE RIVER AOC HABITAT RESTORATION LTU WETLAND

21000 WEST TEN MILE ROAD, SOUTHFIELD,
OAKLAND COUNTY, MICHIGAN

FOR BIDDING - FEBRUARY, 2023

FUNDED BY: GREAT LAKES RESTORATION INITIATIVE
ECT PROJECT NUMBER 210416



Working together, restoring the river

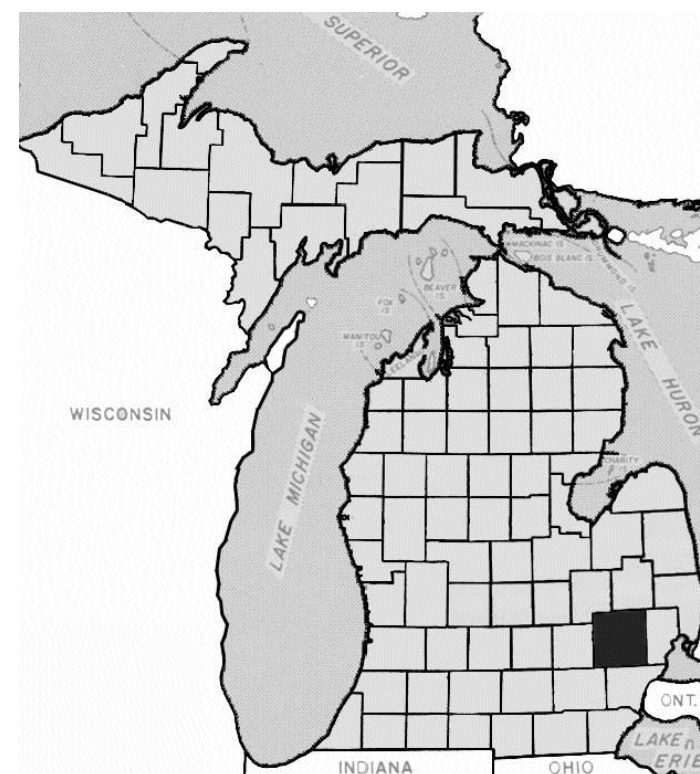


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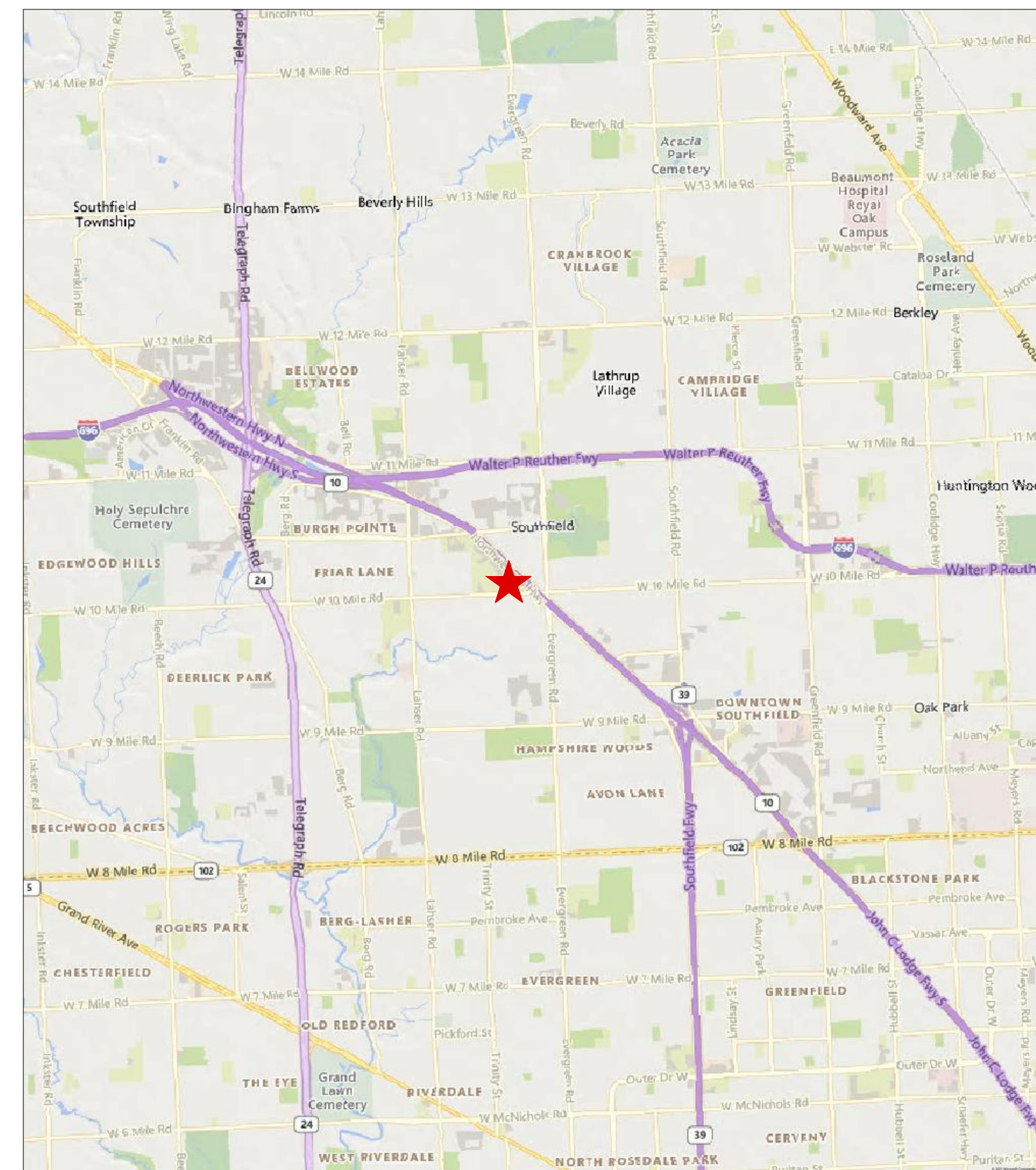


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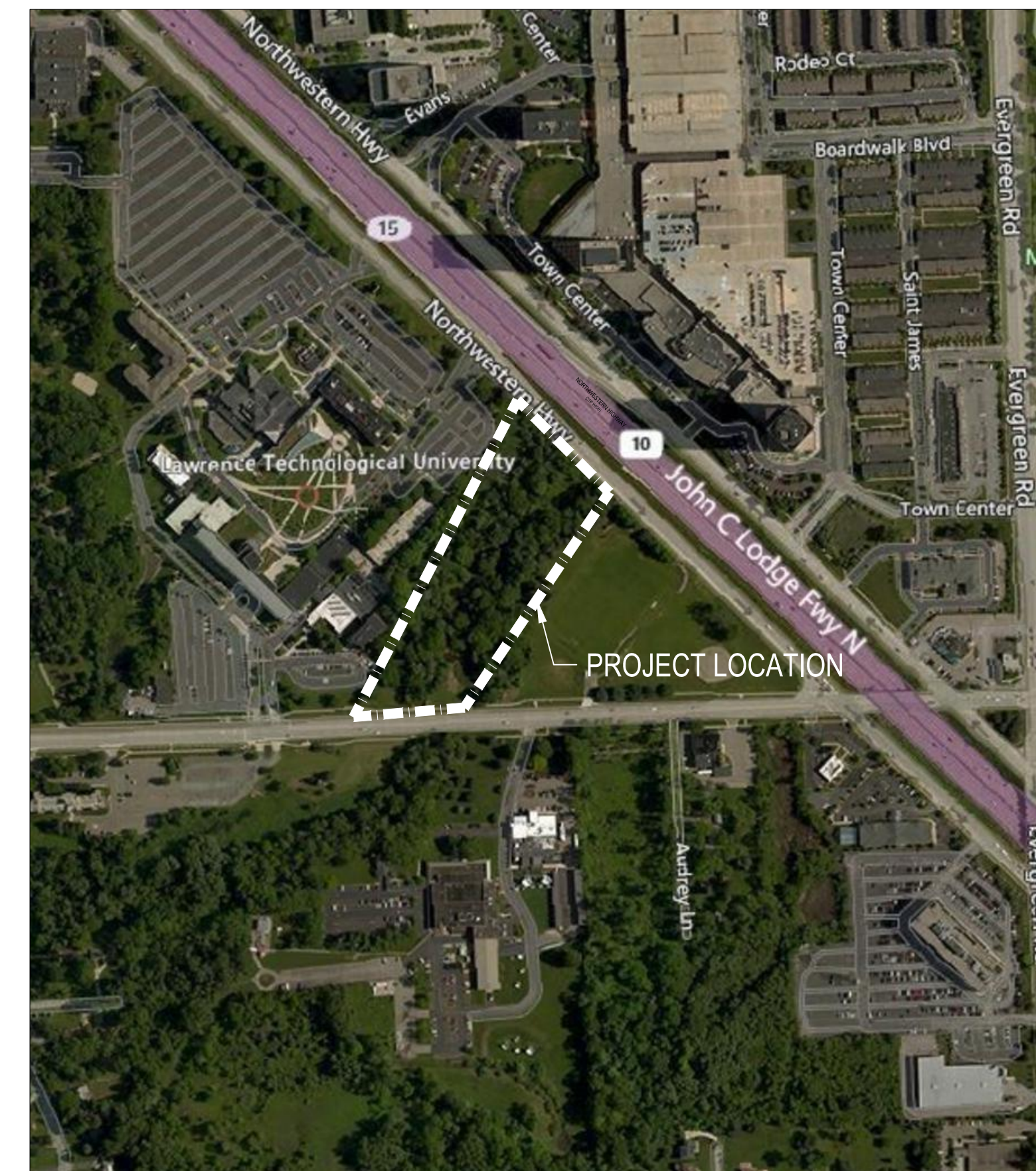
IN PARTNERSHIP WITH:



OAKLAND COUNTY, MI
NOT TO SCALE



PROJECT LOCATION MAP
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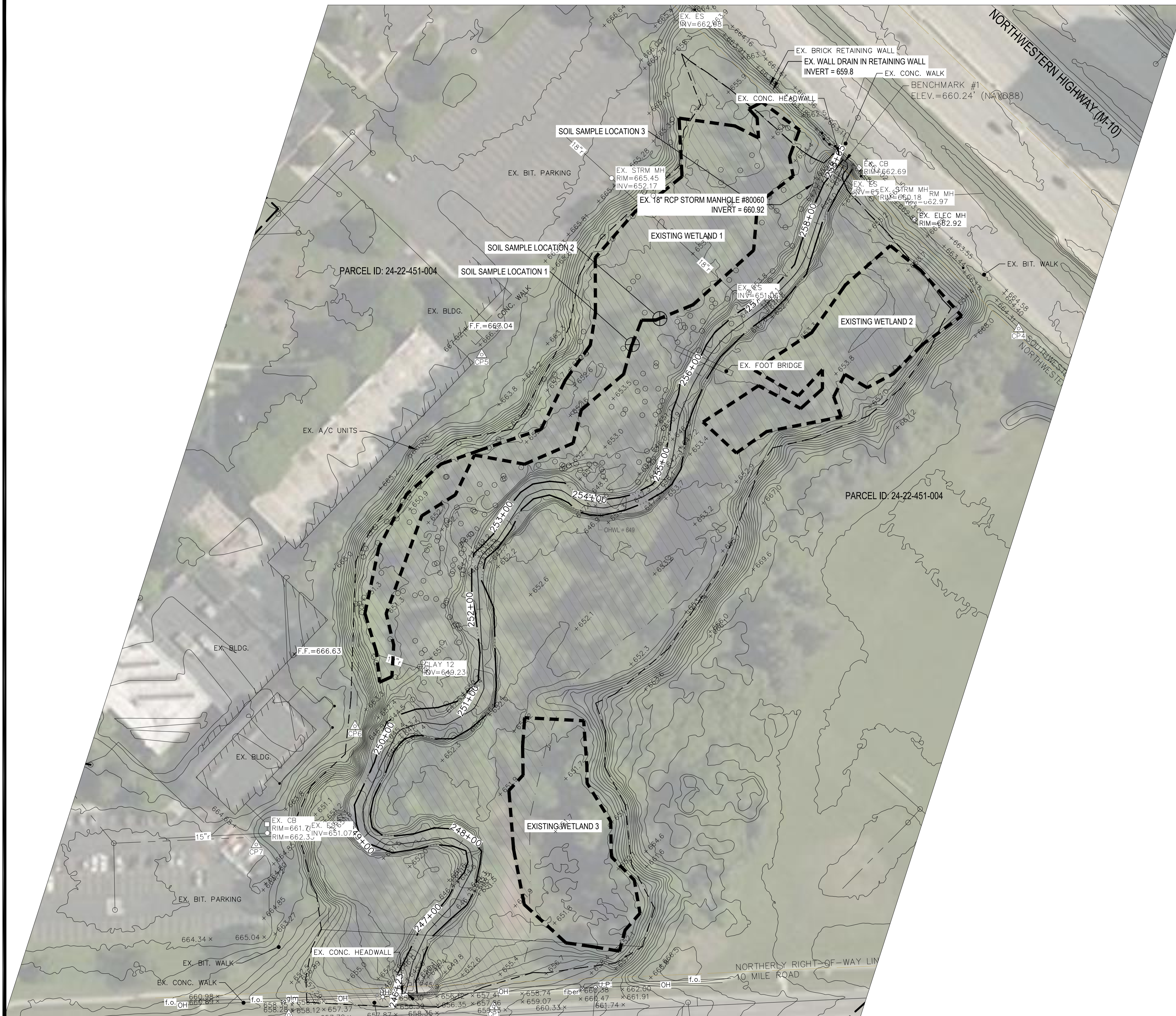


PROJECT VICINITY MAP
NOT TO SCALE



DRAWING INDEX

1. COVER PAGE
2. EXISTING CONDITIONS
3. SITE ACCESS
4. PROPOSED PLAN
5. HABITAT PLAN
6. CROSS SECTIONS
7. REVEGETATION PLAN
8. NOTES
9. DETAILS 1
10. DETAILS 2
11. OC WRC REFERENCE DETAILS 1
12. OC WRC REFERENCE DETAILS 2



LEGEND

	EXISTING CONTOUR
	EXISTING WETLAND
	LIMIT OF REGULATORY FLOODWAY
	LIMIT OF FLOOD ZONE AE
	SURVEYED LIMITS OF STREAM AND CENTERLINE
	EXISTING TREE
	SOIL SAMPLE LOCATIONS
	SURVEY CONTROL POINT
	EXISTING FENCE
	POST
	EXISTING UTILITY POLE
	EXISTING OVERHEAD UTILITY LINE
	EXISTING LIGHT POLE
	EXISTING FIBER OPTIC LINE
	EXISTING WATER MAIN
	EXISTING STORM SEWER
	EXISTING CATCH BASIN OR INLET
	END SECTION
	CULVERT
	GAS LINE MARKER
	FIBER OPTIC MARKER

NOTES

- CONTRACTOR SHALL BECOME FAMILIAR WITH ALL EXISTING SITE CONDITIONS PRIOR TO STARTING WORK.
- THE CONTRACTOR UNDERSTANDS AND ACKNOWLEDGES THAT THE PERFORMANCE OF THE WORK IS REQUIRED TO TAKE PLACE WITHIN THE ROUGE RIVER SYSTEM AND FLOODPLAIN AND THAT THE ROUGE RIVER WATER LEVEL FLUCTUATES.
- THE CONTRACTOR UNDERSTANDS AND ACKNOWLEDGES THAT THEY HAVE TAKEN INTO ACCOUNT THE POTENTIAL FOR ANY WATER LEVEL CHANGES THAT MIGHT OCCUR IN COSTING, SCHEDULING, AND FEASIBILITY OF PERFORMING THE CONTRACT WORK UNDER THE PREVAILING ENVIRONMENTAL CONDITIONS. THEREFORE, THE CONTRACTOR ACKNOWLEDGES THAT ANY FLUCTUATION IN WATER LEVELS, FLOODING, OR INUNDATION DURING/OVER THE COURSE OF THE PROJECT IS LIKELY AND DOES NOT CONSTITUTE A CHANGE IN CONDITIONS OR AN UNFORESEEN SITE CONDITION.
- THE CONTRACTOR SHALL BE FULLY AWARE OF THE ROUGE RIVER HYDROLOGY AND CURRENT WEATHER CONDITIONS SO THAT THE WORK CAN BE SECURED AND PROTECTED AT ALL TIMES, SO THAT SAFE JOG SITE WORKING CONDITIONS ARE MAINTAINED, AND SO THAT SOIL EROSION IS CONTROLLED IN ACCORDANCE WITH ALL APPLICABLE PERMITS AND ENVIRONMENTAL LAWS.
- THE CONTRACTOR ACKNOWLEDGES THAT DELAYS IN THE START OF, OR COMPLETION OF, WORK DUE TO FLUCTUATIONS IN WATER LEVEL THROUGHOUT THE DURATION OF THE PROJECT SHALL NOT CONSTITUTE A CHANGE IN CONDITIONS NOR SHALL BE A BASIS FOR ANY EXTENSION OF TIME OR DAMAGES. IF THE CONTRACTOR SHALL BE UNAVOIDABLY DELAYED IN BEGINNING OR FULFILLING THIS CONTRACT BY REASONS OF CHANGING WATER LEVELS, STORMS, INUNDATION OR FLOODS, THE CONTRACTOR SHALL HAVE NOT VALID CLAIM FOR DAMAGES, BUT SHALL IN SUCH CASE BE ENTITLED TO AN EXTENSION OF TIME AS THE ENGINEER SHALL JUDGE TO BE JUST AND REASONABLE, PROVIDED THAT FORMAL CLAIM FOR AN EXTENSION OF TIME IS MADE IN WRITING BY THE CONTRACTOR WITHIN 14 CALENDAR DAYS OF THE ALLEGED DELAY.
- THE ENGINEER RESERVES THE RIGHT TO SUSPEND WORK ACTIVITIES WHEN IT IS IN THE BEST INTEREST OF THE PROJECT TO DO SO DUE TO WEATHER, FLOW, OR WATER LEVEL CONDITIONS. THE ENGINEER SHALL SUBMIT, IN WRITING, THE DIRECTIVE TO SUSPEND WORK ACTIVITIES TO THE CONTRACTOR. SUCH SUSPENSION SHALL NOT BE A BASIS FOR TIME EXTENSION.
- THE CONTRACTOR SHALL RESEARCH AVAILABLE INFORMATION AND PERFORM ITS OWN INDEPENDENT INVESTIGATIONS, AS NEEDED, IN AN EFFORT TO FULLY UNDERSTAND ENVIRONMENTAL CONDITIONS ASSOCIATED WITH THE PROJECT SITE. THE CONTRACTOR SHALL UNDERSTAND THE SITE CONDITIONS THAT WILL AFFECT THE COST, SCHEDULE, OR PERFORMANCE OF WORK IN ADVANCE OF STARTING SUCH WORK.
- TOPOGRAPHICAL CONTOURS HAVE BEEN DERIVED FROM LOCAL LIDAR DATA. CROSS-SECTIONS AND CONTROL POINTS WERE SURVEYED BY MIDWESTERN CONSULTING, INC. SURVEY CONDUCTED DATED 08/09/2021.
- ALL ELEVATIONS ARE SHOWN IN NAVD88 DATUM.
- CONTRACTOR TO CONFIRM EXISTING CONDITIONS PRIOR TO CONSTRUCTION AND REPORT ANY DISCREPANCIES TO THE PROJECT TEAM PRIOR TO COMMENCING WORK ACTIVITIES.
- SOIL SAMPLE LABORATORY DATA IS AVAILABLE UPON REQUEST.
- PARTIAL TREE INVENTORY IS AVAILABLE UPON REQUEST.
- THE BENCHMARK AND CONTROL POINT INFORMATION IS SHOWN ON THE ATTACHED SURVEY REFERENCE DRAWING.

BENCHMARKS

BENCHMARK #1 - TOP OF CONCRETE HEADWALL LOCATED ALONG THE SOUTHERLY RIGHT-OF-WAY OF NORTHWESTERN HIGHWAY; +/-16.8 FEET SOUTHWEST OF A CONCRETE BARRIER; +/- 15.8 FEET WEST OF A CATCH BASIN; +/-153 FEET SOUTHWEST OF THE CENTERLINE OF HIGHWAY. ELEVATION = 660.24' (NAVD88 DATUM)

BENCHMARK #2 - TOP OF CONCRETE HEADWALL LOCATED ALONG THE NORTHERLY RIGHT-OF-WAY OF 10 MILE ROAD; +/-17.0 FEET EAST OF A UTILITY POLE; +/-53 FEET NORTH OF THE CENTERLINE OF 10 MILE ROAD; 88.8 FEET WEST OF CONTROL POINT #1; 20.7 FEET NORTH OF THE BACK OF CURB; ELEVATION = 656.49' (NAVD88 DATUM)

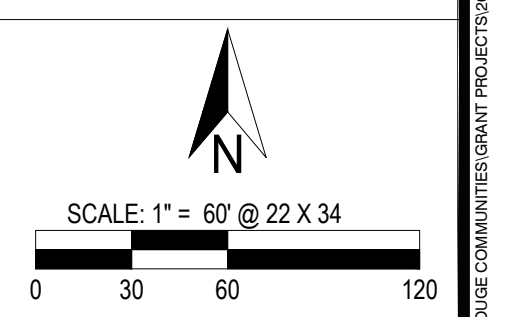
SURVEY NOTES

THE FLOODPLAIN DEPICTED HEREON IS PER THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) COMMUNITY MAP 26125C0676F, EFFECTIVE SEPTEMBER 29, 2006.

ROUGE RIVER AOC HABITAT RESTORATION
LTU WETLAND

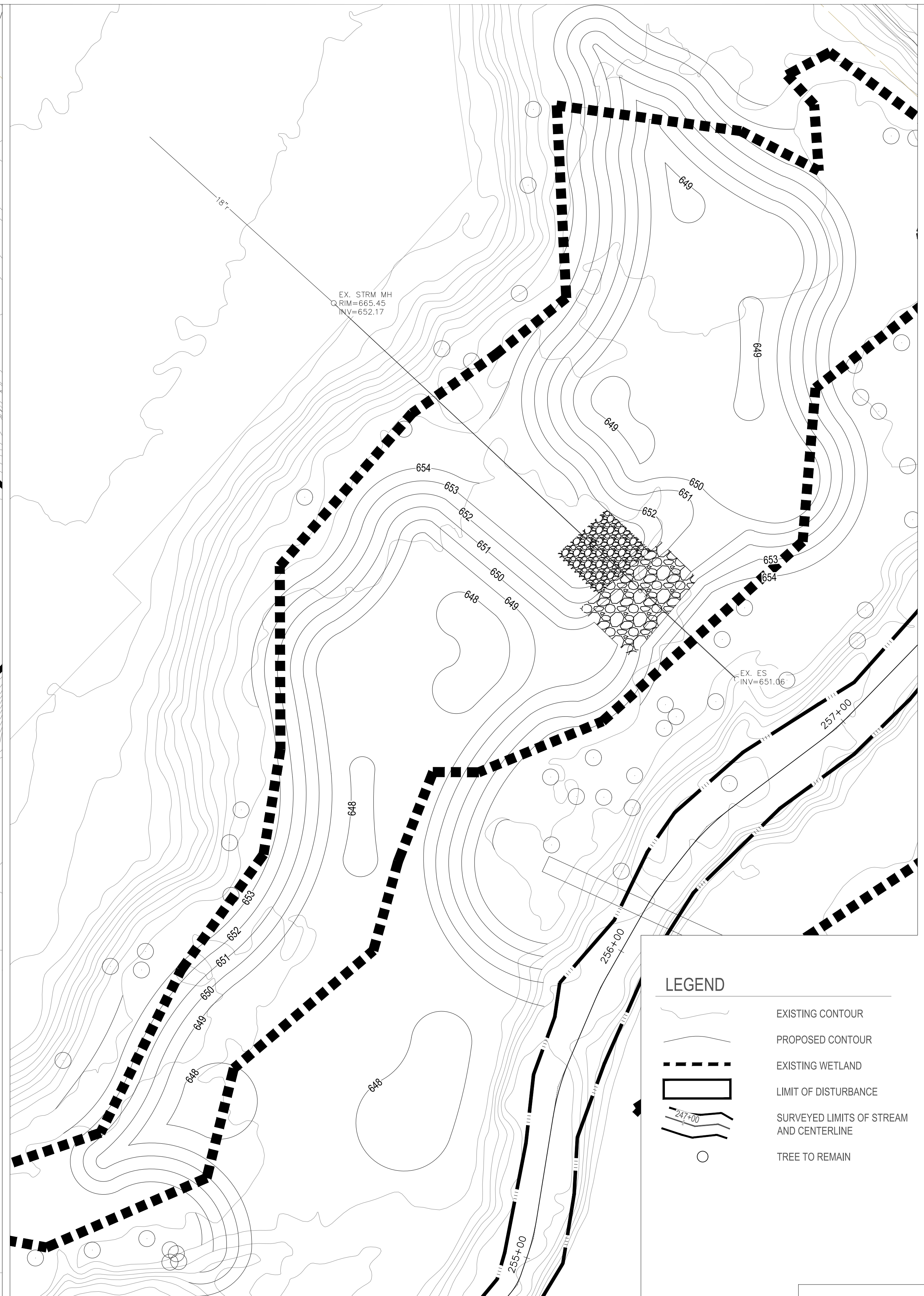
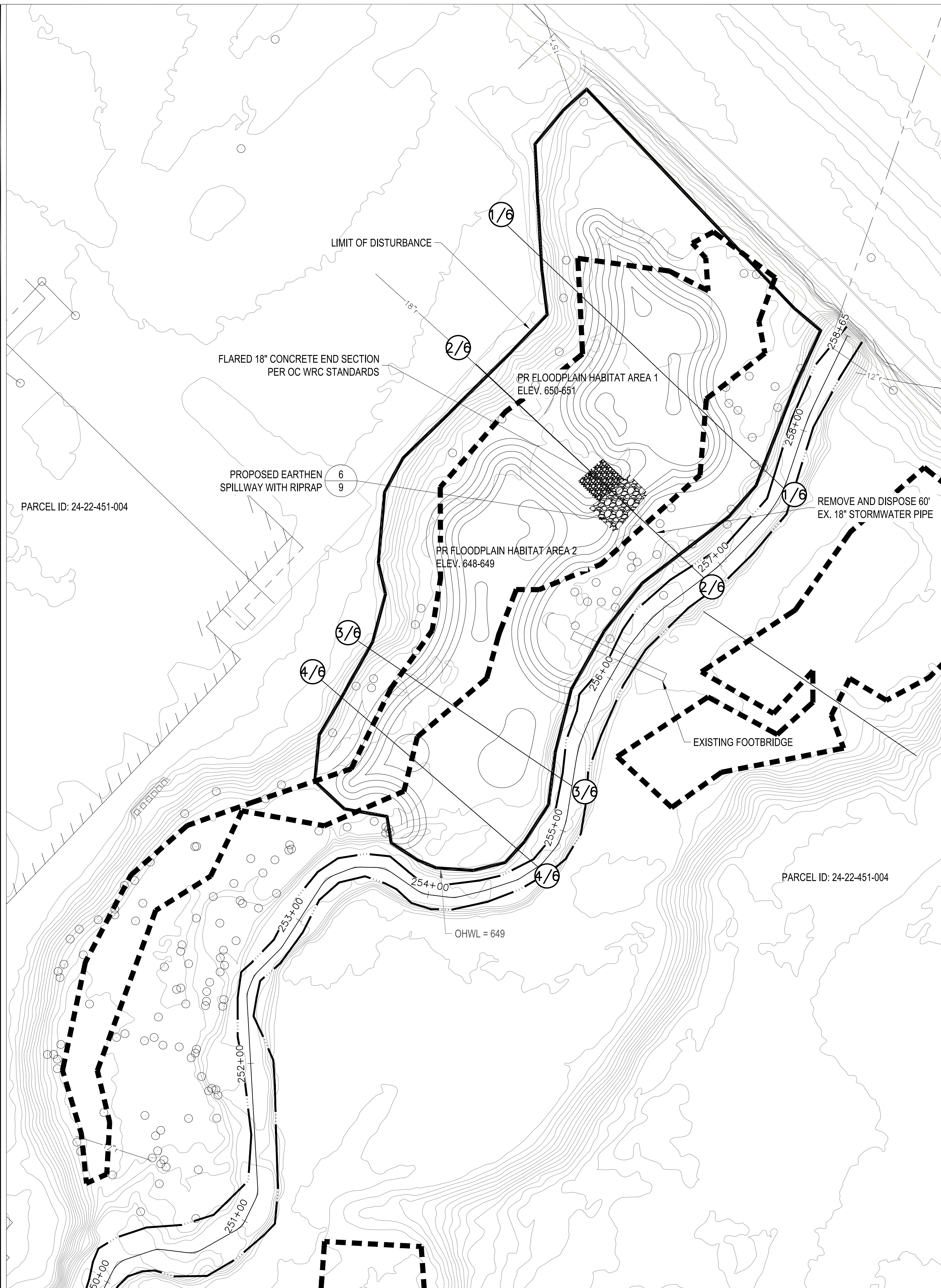
ECT PROJECT No.:	210416
DESIGNED BY:	RM
DRAWN BY:	AKSD
CHECKED BY:	RM
APPROVED BY:	RM
PRELIMINARY DESIGN	07-28-2021
50% DESIGN DRAWINGS	11-01-2021
PERMIT DRAWINGS	05-13-2022
90% DESIGN DRAWINGS	09-12-2022
FOR CONSTRUCTION	02-15-2023

EXISTING CONDITIONS



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SCALE OF ROUGE COMMUNITIES GRANT PROJECT 2020-2023. SEPARATE WETLAND RESTORATION PLAN FOR REDDING OF 2023 DWS.



LEGEND

	EXISTING CONTOUR
	PROPOSED CONTOUR
	EXISTING WETLAND
	LIMIT OF DISTURBANCE
	SURVEYED LIMITS OF STREAM AND CENTERLINE
	TREE TO REMAIN

1 PROPOSED PLAN
4 SCALE: 1" = 40'

2 GRADING PLAN
4 SCALE: 1" = 20'

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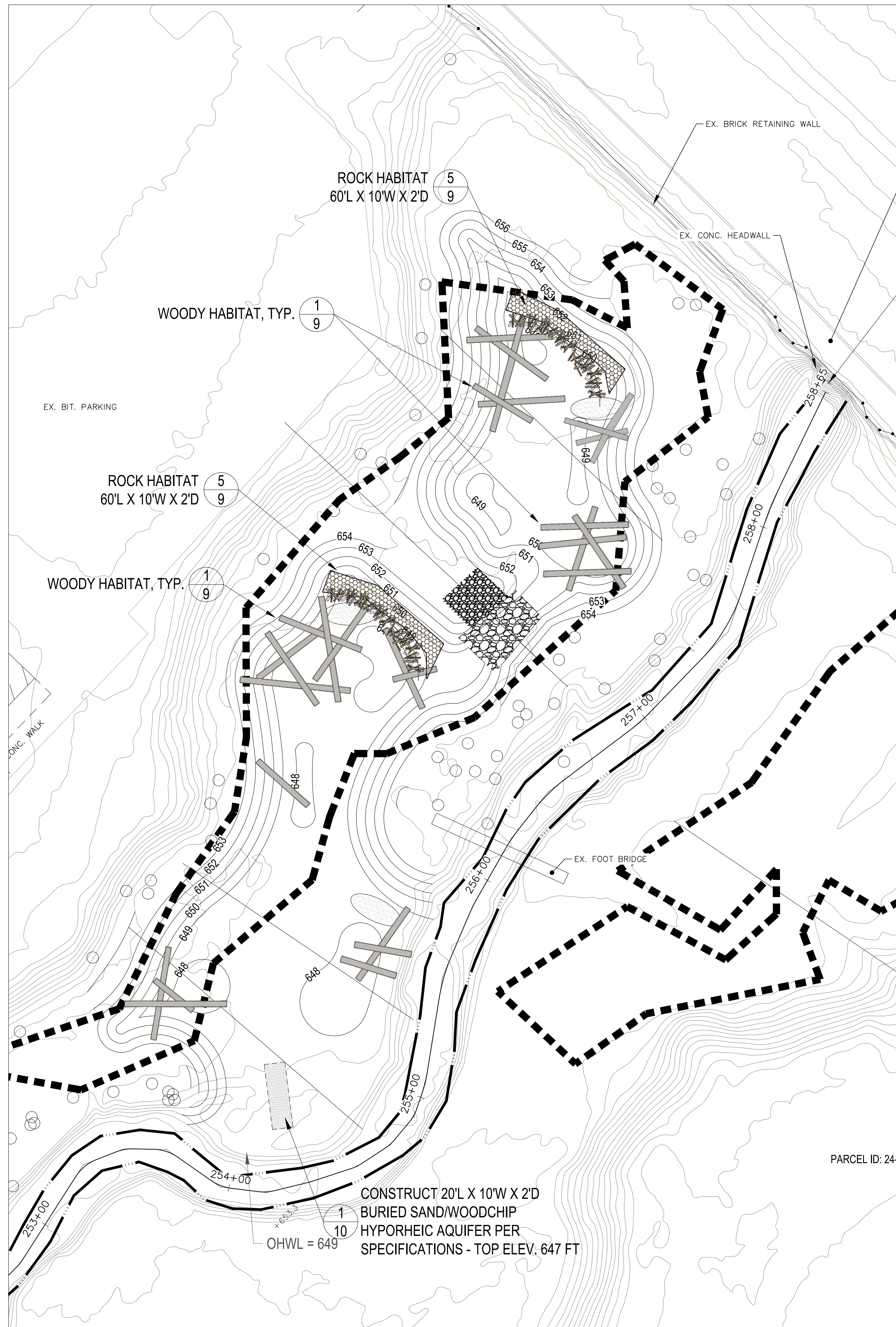
**ROUGE RIVER AOC
 HABITAT
 RESTORATION
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PROPOSED PLAN

SCALE: **VARIES**

PARCEL ID: 24-22-451-004
 OHWL = 649
 EX. STRM MH RIM=665.45 INV=652.17
 EX. ES P=INV=651.06
 REMOVE AND DISPOSE 60" EX. 18" STORMWATER PIPE
 PR FLOODPLAIN HABITAT AREA 1 ELEV. 650-651
 PR FLOODPLAIN HABITAT AREA 2 ELEV. 648-649
 FLARED 18" CONCRETE END SECTION PER OC WRC STANDARDS
 PROPOSED EARTHEN SPILLWAY WITH RIPRAP
 LIMIT OF DISTURBANCE
 EXISTING FOOTBRIDGE
 ECT PROJECT No.: 210416
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 ALLIANCE OF ROUGE COMMUNITIES GRANT PROJECT 2020-22: REPAIR LTU WETLANDS AND LTU FOR BIODIVERSITY



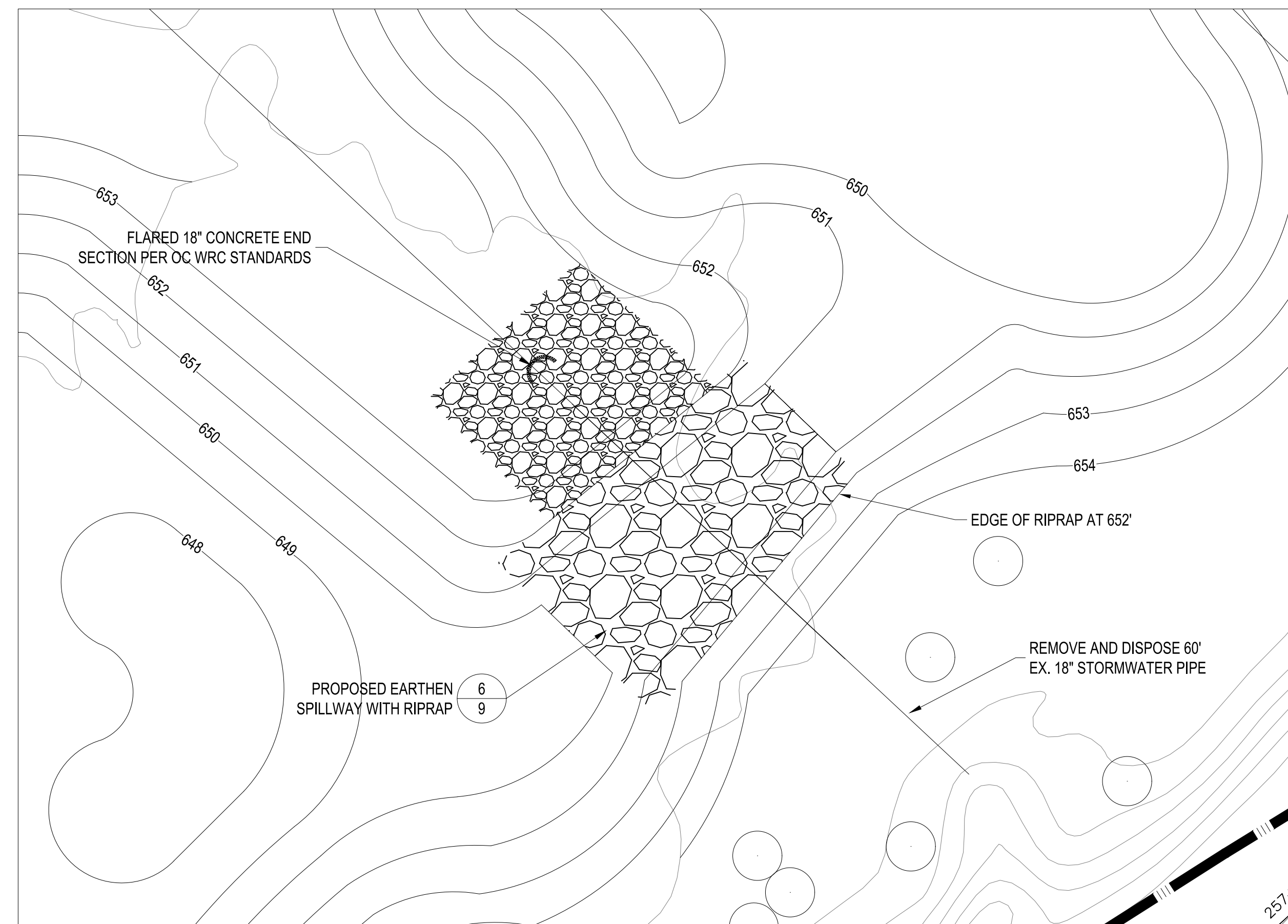
1 HABITAT PLAN
5 SCALE: 1" = 30'

NOTES

1. COMPLETE GRADING, SEEDING, AND MULCHING OF FLOODPLAIN HABITAT AREAS. SEE SPECIFICATIONS FOR SEED AND MULCH INFORMATION.
2. SEE SPECIFICATION SECTION 0213 - HABITAT FEATURES FOR DETAILED MATERIALS AND INSTALLATION OF ALL HABITAT WORK. THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER'S REPRESENTATIVE ON THE LOCATION AND INSTALLATION OF A REPRESENTATIVE AREA OF EACH OF THE FEATURES.
3. PLACE BRUSH ALONG THE TOE OF NORTH (SOUTH-FACING) SLOPES AND ANCHOR WITH 18"-20" THICK LAYER OF ROCK HABITAT MATERIALS.
4. LARGE WOODY MATERIAL CONSISTS OF 6"-18" DIAMETER, 18'-25' LONG COMPLEX MAPLE OR BOX ELDER LOGS. WOODY HABITAT COMPLEXES SHALL CONSIST OF 2-3 CYDS OF TOPS AND BRUSH AND 6-8 LOGS AT SIX LOCATIONS AS STAKED IN THE FIELD. THE UNCUT LARGE WOODY MATERIALS (I.E., WITH BRANCHES) SHALL BE CRISS-CROSSED AND ANCHORED WITH WOOD PILINGS. PILINGS CONSIST OF 6"-8" DIAMETER, 6'-8' LONG HARDWOOD LOGS DRIVEN VERTICALLY TO LEAVE 2 FT EXPOSED ABOVE THE PROPOSED FLOODPLAIN SURFACE.
5. TURTLE MOUNDS CONSIST OF 4-6 CYDS OF SAND OVER 1-2 CYDS OF BRANCHES AND BRUSH PER SPECIFICATIONS IN THREE LOCATIONS AS STAKED IN THE FIELD.
6. FLOODPLAIN HABITAT AREAS 1 AND 2 SHALL HAVE 1 CYD OF BRUSH AND 2-3 BASKING LOGS PLACED CRISS-CROSSED WITH ONE END BURIED INTO THE BOTTOM OF THE DEPRESSION AND THE OTHER ANGLED ONTO THE UPPER BANK.
7. CONSTRUCT HYPERHEIC AQUIFER PER DETAIL 1/10 BY BURYING A MIXTURE OF SAND AND WOOD CHIPS PER SPECIFICATIONS TO A SURFACE ELEVATION OF 647 (LOW WATER ELEVATION), COVER WITH TOPSOIL AND GRADE TO ELEVATION 649,

LEGEND

- SEED, AND MULCH. LOCATION TO BE STAKED IN THE FIELD.
- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING WETLAND
- SURVEYED LIMITS OF STREAM AND CENTERLINE
- TREE TO REMAIN
- ROCK HABITAT
- BRUSH HABITAT
- WOODY HABITAT
- TURTLE NESTING MOUND
- BASKING LOG



2 WETLAND GRADING
5 SCALE: 1" = 10'

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GLRI GRANT No.:
GL-00E02976

Alliance
of Rouge
Communities



Working together, restoring the river

**ROUGE RIVER AOC
HABITAT
RESTORATION

LTU WETLAND**

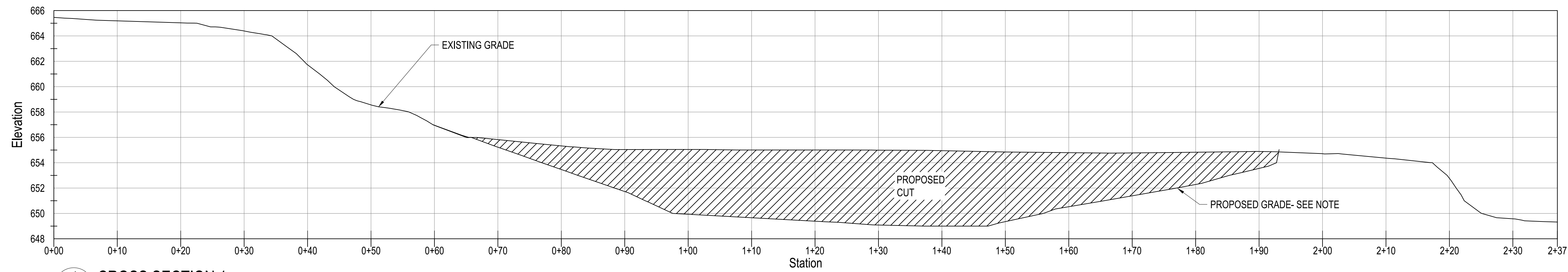
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FOR CONSTRUCTION	02-15-2023

HABITAT PLAN

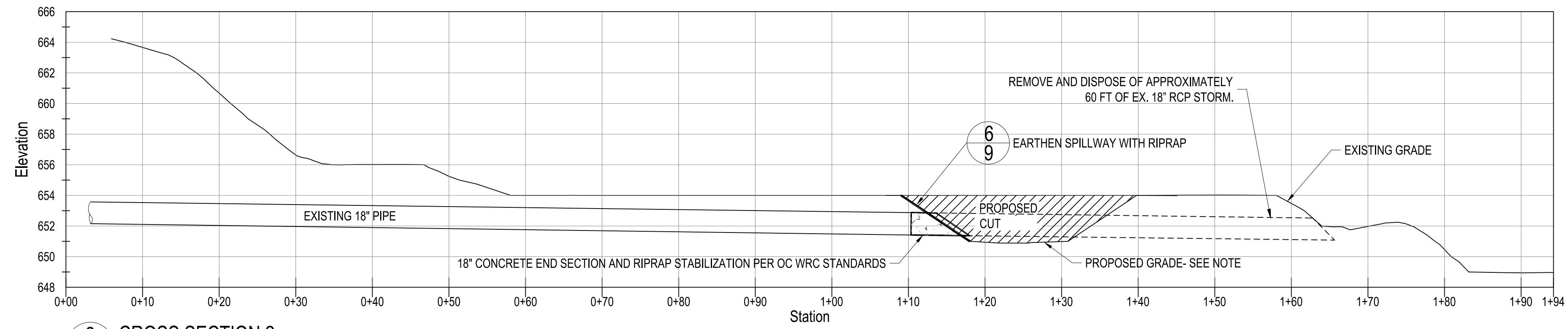


SCALE: **VARIES**

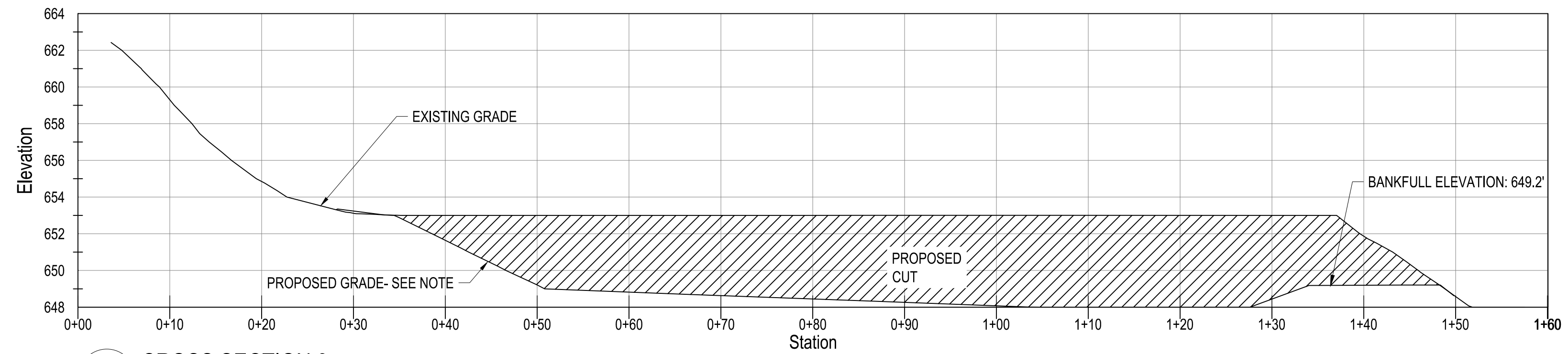
ALLIANCE OF ROUGE COMMUNITIES GRANT PROJECT 2020-2022: SPECIALTY WETLAND RESTORATION FOR FLOODING OF 2023 DRAWS



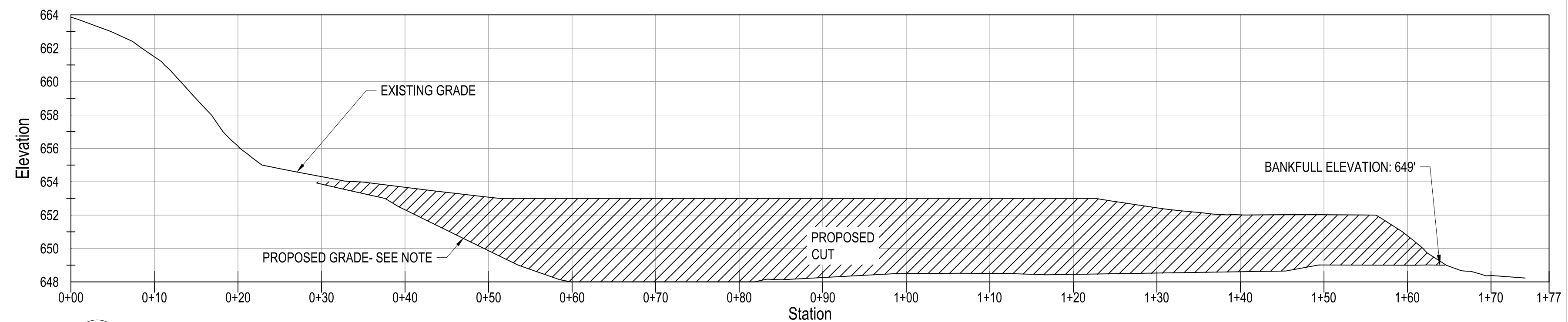
1 CROSS SECTION 1
6 HORIZONTAL SCALE: 1" = 10', VERTICAL SCALE: 1" = 5'



2 CROSS SECTION 2
6 HORIZONTAL SCALE: 1" = 10', VERTICAL SCALE: 1" = 5'



3 CROSS SECTION 3
6 HORIZONTAL SCALE: 1" = 10', VERTICAL SCALE: 1" = 5'



4 CROSS SECTION 4
6 HORIZONTAL SCALE: 1" = 10', VERTICAL SCALE: 1" = 5'

NOTE:
 4" LAYER OF TOPSOIL SHALL BE PLACED BENEATH FINAL GRADES, AMENDED AS NECESSARY. CONTRACTOR TO SCARIFY SURFACE TO A DEPTH OF 3 INCHES WHERE TOPSOIL IS SCHEDULED. SCARIFY IN AREAS WHERE EQUIPMENT USED FOR HAULING AND SPREADING TOPSOIL HAS COMPACTED SUBSOIL.



GLRI GRANT No.:
 GL-00E02976










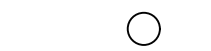
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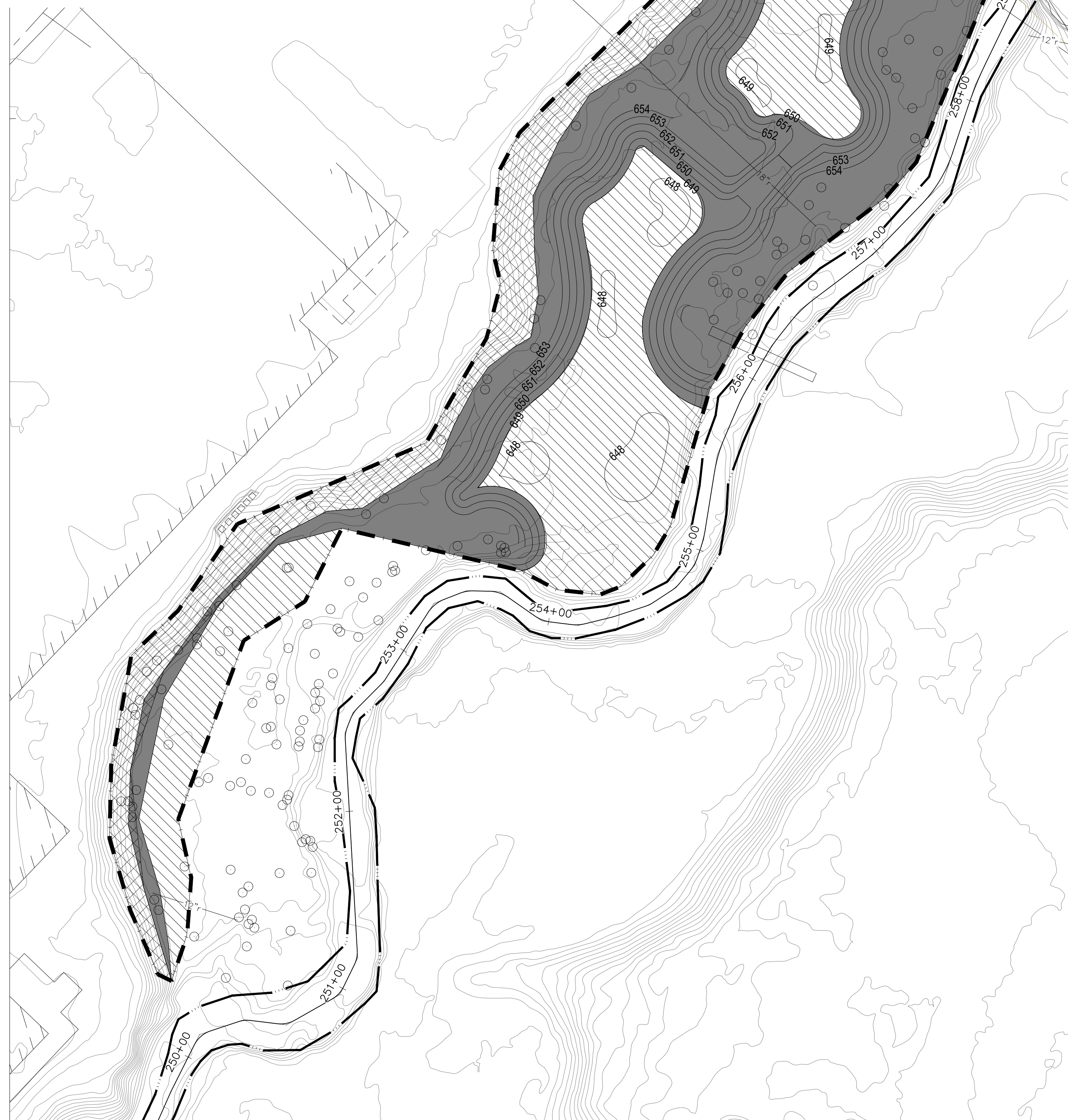
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CROSS SECTIONS

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LEGEND

-  PLANTING ZONE A
-  PLANTING ZONE B
-  PLANTING ZONE C
-  VEGETATION MANAGEMENT ZONE
-  SURVEYED LIMITS OF STREAM AND CENTERLINE
-  EXISTING CONTOUR
-  PROPOSED CONTOUR
-  TREE TO REMAIN



MAINTENANCE AND WARRANTY PERIOD:

1. MAINTENANCE PERIOD: ENSURE THAT ALL TREES, SHRUBS, SEEDING, AND HERBACEOUS PLANTS INSTALLED UNDER THIS CONTRACT WILL BE HEALTHY AND IN FLOURISHING CONDITION OF ACTIVE GROWTH FOR TWO (2) FULL GROWING SEASONS (MAY THROUGH OCTOBER) FROM DATE OF PLANTING INSTALLATION ACCEPTANCE. THE CONTRACTOR SHALL RESPOND WITHIN TWO (2) WEEKS OF WRITTEN REQUESTS BY THE OWNER FOR REPLACEMENT OR REPAIR. IF THE CONTRACTOR FAILS TO RESPOND WITHIN THIS TIME, THE OWNER MAY PROCEED WITH REPLACEMENT WORK AND BILL THE CONTRACTOR.
2. WARRANTY PERIOD: ENSURE THAT ALL TREES, SHRUBS, SEEDING, AND HERBACEOUS PLANTS INSTALLED UNDER THIS CONTRACT WILL BE HEALTHY AND IN FLOURISHING CONDITION OF ACTIVE GROWTH FOR ONE (1) FULL GROWING SEASON (MAY THROUGH OCTOBER) FROM DATE OF MAINTENANCE PERIOD ACCEPTANCE. THE CONTRACTOR SHALL RESPOND WITHIN TWO (2) WEEKS OF WRITTEN REQUESTS BY THE OWNER FOR REPLACEMENT OR REPAIR. IF THE CONTRACTOR FAILS TO RESPOND WITHIN THIS TIME, THE OWNER MAY PROCEED WITH REPLACEMENT WORK AND BILL THE CONTRACTOR.
3. ALL DELAYS IN COMPLETION OF PLANTING OPERATIONS WHICH EXTEND THE PLANTING INTO MORE THAN ONE PLANTING SEASON SHALL EXTEND THE WARRANTY PERIOD CORRESPONDINGLY.
4. REPLACEMENTS: AS SOON AS WEATHER CONDITIONS PERMIT, REPLACE, WITHOUT COST TO OWNER, ALL DEAD PLANTS AND ALL PLANTS NOT IN A VIGOROUS, THRIVING CONDITION, AS DETERMINED BY THE ENGINEER DURING AND AT THE END OF THE MAINTENANCE AND WARRANTY PERIODS.
5. PATCHY OR BARE AREAS (IN EXCESS OF 8 SQUARE FEET) WHERE SEED MIX FAILED TO CREATE SUFFICIENT DENSITY OF COVER SHALL BE RESEED BY HAND AT THE RECOMMENDED APPLICATION RATE AT NO ADDITIONAL COST TO OWNER.
6. INCORRECT MATERIALS: DURING WARRANTY PERIOD, REPLACE AT NO COST TO OWNER ALL PLANTS REVEALED AS BEING UNTRUE TO NAME. PROVIDE REPLACEMENTS OF A SIZE AND QUALITY TO MATCH THE PLANTED MATERIALS AT THE TIME THE MISTAKE IS DISCOVERED.
7. ALL PLANT STOCK SHALL BE WATERED BY THE CONTRACTOR TO ENSURE THE HEALTH AND VIGOR OF THE PLANTED MATERIALS. THE CONTRACTOR SHALL WATER AS NEEDED WHERE NATURAL RAINFALL IS <0.5 INCHES PER WEEK DURING AT LEAST THE FIRST 60 DAYS OF THE MAINTENANCE AND WARRANTY PERIODS. WATERING SHALL CONTINUE SO SEEDLINGS DO NOT DRY OUT ONCE WATERING HAS BEGUN. THE WATERING SHALL BE DONE FROM SURFACE METHODS AT A PRESSURE NOT TO EXCEED THE INFILTRATION RATE OF THE SOIL, LIMITING RUNOFF DURING THE WATERING PERIOD. EACH AREA WILL BE WATERED WITH SUFFICIENT WATER TO COMPLETELY SATURATE THE ROOT ZONE. THE CONTRACTOR SHALL INSPECT ALL PLANTS FOR INSECT INFESTATION AND DAMAGE.
8. EROSION SHALL BE REPAIRED BY THE CONTRACTOR.
9. PROTECTION FROM TRAFFIC AND EROSION IN NEWLY SEEDED AREAS AND THE MITIGATION AREAS IS THE RESPONSIBILITY OF THE CONTRACTOR. SAFETY FENCES AND/OR OTHER BARRIER METHODS WITH APPROPRIATE SIGNAGE MAY BE USED FOR ONE YEAR FROM COMPLETION OF CONSTRUCTION ACTIVITIES. ALL COSTS ASSOCIATED WITH THIS IS INCLUSIVE OF CONTRACTOR'S PRICING.
10. NOTIFY THE OWNER PRIOR TO AND FOLLOWING ANY MAINTENANCE ACTIVITY.
11. FINAL ACCEPTANCE OF WORK WILL BE SUBJECT TO ACCEPTANCE BY PROJECT MANAGER AND OWNER AT THE END OF WARRANTY PERIOD.

NATIVE PLANTINGS:

1. ALL PLANTS SHALL BE OF NATIVE PLANT MATERIAL OF GENOTYPES FROM THE NORTH CENTRAL STATES ONLY (IL, IN, IA, MI, OH), AND FROM A RECOGNIZED NURSERY OF THIS REGION. MICHIGAN SOURCES FOR SHRUBS, AND PLUGS SHALL BE LOCATED BEFORE BRANCHING OUT TO OTHER NORTH CENTRAL STATES. NATIVE PLANTINGS INCLUDE ALL SHRUBS AND PLUGS INSTALLED AS PART OF THIS PROJECT.
2. PLANTS SHALL BE NURSERY GROWN IN ACCORDANCE WITH GOOD HORTICULTURAL PRACTICES AND MUST MEET APPLICABLE REQUIREMENTS OF ICBN AND ICNP. PLANTS SHALL BE SOUND, HEALTHY AND VIGOROUS, WELL BRANCHED AND DENSELY FOLIATED WHEN IN LEAF. PLANTS SHALL BE FREE OF DISEASE, INSECT PESTS, EGGS, OR LARVAE. PLANTS SHALL BE FREE OF KINKED, CIRCLING OR GIRDLING TRUNK SURFACE AND CENTER ROOTS, AND SHALL NOT BE ROOT-BOUND. RESPECT MAXIMUM STORAGE TIMES FOR PLANT STOCK.
3. NATIVE PLANTING AREAS SHALL BE INSTALLED AFTER MAY 24 (WHEN SOIL IS FREE OF FROST AND IN WORKABLE CONDITION), BUT BEFORE JUNE 30 OR AFTER AUG. 21 BUT BEFORE OCTOBER 30 OR AS APPROVED BY THE LANDSCAPE ARCHITECT.
4. FURNISH PLANT SPECIES AND SIZES AS INDICATED ON THE PLANS. PLANT STOCK SHALL BE TRUE TO THEIR NAME (GENUS AND SPECIES), AS SPECIFIED. CULTIVARS AND SPECIMENS SHALL NOT BE USED WITHOUT PRIOR APPROVAL BY LANDSCAPE ARCHITECT.
5. NATIVE PLANTINGS TO BE INSTALLED PER DETAILS.
6. REMOVE ALL CONTAINERS, TAGS AND PACKAGING MATERIAL AND DISPOSE OF LEGALLY OFF-SITE.
7. WATER PLANT STOCK IMMEDIATELY AFTER PLANTING SUCH THAT ROOT ZONE IS THOROUGHLY SOAKED. CONTRACTOR SHALL BE RESPONSIBLE TO KEEP PLUGS ADEQUATELY WATERED, IF NECESSARY, TO ENSURE THEIR SURVIVAL.
8. IF EROSION CONTROL BLANKET IS NEEDED IN AREAS WHERE PLUGS ARE PRESENT, INSTALL EROSION CONTROL BLANKET AFTER SEEDING, BUT PRIOR TO PLANTING. EROSION CONTROL BLANKET SHALL BE INSTALLED USING THE MODERATE KINETIC ENERGY STAKING PATTERN PER SPECIFICATIONS USING BIODEGRADABLE STAKES.
9. MULCH FOR TREES AND SHRUBS SHALL BE NATURAL DOUBLE SHREDDED HARDWOOD.

SEEDING:

1. SEE SPECIFICATIONS FOR SEEDING AND PLANTING LISTS FOR EACH PLANTING.
2. SEED SHALL BE FRESH, CLEAN, NEW SEED OF NATIVE PLANT MATERIAL OF GENOTYPES FROM THE NORTH CENTRAL STATES ONLY (IL, IN, IA, MI, OH), AND FROM A RECOGNIZED NURSERY OF THIS REGION - REFER TO SPECIFICATIONS.
3. NATIVE SEED AREAS SHALL BE SEEDED AFTER MAY 1, (WHEN SOIL IS FREE OF FROST AND IN WORKABLE CONDITION), BUT BEFORE JUNE 30 OR AFTER OCTOBER 1, BUT BEFORE NOVEMBER 30 (OR PRIOR TO FREEZE-UP) OR AS APPROVED BY THE LANDSCAPE ARCHITECT.
4. SEEDBED PREPARATION: PRIOR TO SOWING NATIVE SEED, LIGHTLY SCARIFY UNGRADED AREAS SO THAT THE BED IS SMOOTH AND FREE OF LARGE CLUMPS. SEED BED SHALL BE FIRM, BUT NOT COMPACT. SEED IMMEDIATELY AFTER SCARIFYING AND ENSURE GOOD SOIL TO SEED CONTACT. DO NOT FERTILIZE.
5. DO NOT SOW SEED WHERE STANDING WATER IS PRESENT.
6. SOW NATIVE SEED AT A SPECIES RATE OF POUNDS PER ACRE INDICATED ON THE DRAWING AND PER SUPPLIER'S RECOMMENDATIONS. LIGHTLY RAKE TO INCORPORATE SEED INTO SOIL. DO NOT COVER SEED MORE THAN 1/4 INCH WITH SOIL.
7. CONTRACTOR SHALL REPAIR DAMAGED VEGETATION AND AERATE SOIL OVER ROOT ZONE OF NEGATIVELY IMPACTED VEGETATION. RE-SEED ALL DISTURBED AREAS TO PRE-EXISTING CONDITIONS.

EXISTING SITE CONDITIONS:

1. CONTRACTOR SHALL BECOME FAMILIAR WITH ALL EXISTING SITE CONDITIONS PRIOR TO STARTING WORK.
2. THE CONTRACTOR UNDERSTANDS AND ACKNOWLEDGES THAT THE PERFORMANCE OF THE WORK IS REQUIRED WITHIN A RIVER SYSTEM AND FLOODPLAIN.
3. THE CONTRACTOR SHALL BE FULLY AWARE OF THE ROUGE RIVER HYDROLOGY AND CURRENT WEATHER CONDITIONS SO THAT WORK IN PROGRESS CAN BE SECURED AND PROTECTED, SO THAT SAFE JOB SITE WORKING CONDITIONS ARE MAINTAINED, AND SO THAT SOIL EROSION IS MINIMIZED DURING AND FOLLOWING A RAIN EVENT.
4. THE ROUGE RIVER HAS A VERY SHORT RESPONSE TIME TO STORM RUNOFF.
5. THE CONTRACTOR ACKNOWLEDGES THAT DELAYS IN THE START OF OR COMPLETION OF WORK DUE TO TYPICAL SEASONAL RAINFALL AND DUE TO TYPICAL PERIODIC HIGH FLOWS IN THE ROUGE RIVER SHALL NOT CONSTITUTE A BASIS FOR ANY EXTENSION OF TIME OR DAMAGES. IF THE CONTRACTOR SHALL BE UNAVOIDABLY DELAYED IN BEGINNING OR FULFILLING THIS CONTRACT BY REASONS OF EXCESSIVE STORM OR FLOODS THE CONTRACTOR SHALL HAVE NO VALID CLAIM FOR DAMAGES, BUT THEY SHALL IN SUCH CASE BE ENTITLED TO AN EXTENSION OF TIME AS THE ENGINEER SHALL ADJUDGE TO BE JUST AND REASONABLE; PROVIDED THAT FORMAL CLAIM FOR AN EXTENSION OF TIME IS MADE IN WRITING BY THE CONTRACTOR WITHIN ONE WEEK OF THE ALLEGED DELAY.

NOTE: SEE SPECIFICATIONS - SPECIAL PROVISION FOR NATIVE PLANTINGS FOR PLANTING SCHEDULE.



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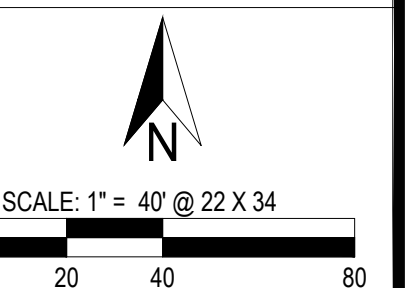


**ROUGE RIVER AOC
HABITAT
RESTORATION**

LTU WETLAND

ECT PROJECT No.:	210416
DESIGNED BY:	RM
DRAWN BY:	AK/SD
CHECKED BY:	RM
APPROVED BY:	RM
PRELIMINARY DESIGN	07-28-2021
50% DESIGN DRAWINGS	11-01-2021
PERMIT DRAWINGS	05-13-2022
90% DESIGN DRAWINGS FOR CONSTRUCTION	09-12-2022 02-15-2023

**REVEGETATION
PLAN**



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DRAWN BY: AK/SD, CHECKED BY: RM, DATE: 02/15/2023, PROJECT: 210416, SHEET: 7 OF 28, SCALE: 1" = 40'

EROSION CONTROL BLANKET NOTES:

- THESE NOTES APPLY TO THE ENTIRE PROJECT.
- NORTH AMERICAN GREEN SC150BN (BIONET) TO BE USED ON ALL DISTURBED SLOPES STEEPER THAN 1V:6H.
- HYDRAULIC MULCH OR CERTIFIED WEED MULCH TO BE USED ON ANY DISTURBED GROUND FLATTER THAN 1V:6H OUTSIDE OF WETLAND AREAS.
- ALL EROSION CONTROL BLANKET TO BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.

STANDARDS

ALL MATERIALS AND CONSTRUCTION EXECUTION SHALL BE AS NOTED IN THE TECHNICAL SPECIFICATIONS AND/OR SPECIAL PROVISIONS. THE LATEST EDITION OF THE MICHIGAN DEPARTMENT OF TRANSPORTATION (MDOT) STANDARD SPECIFICATIONS FOR CONSTRUCTION, INCLUDING ALL SUPPLEMENTS THERETO, SHALL GOVERN ALL CONSTRUCTION ITEMS THAT ARE PART OF THIS PLAN AND NOT SPECIFICALLY ADDRESSED IN THE SPECIFICATIONS. ANY MODIFICATION TO THE SPECIFICATIONS OR CHANGES TO THE WORK AS SHOWN ON THE DRAWINGS MUST HAVE PRIOR WRITTEN APPROVAL BY THE ECT (CONSULTANT).

SUMMARY OF WORK

THE WORK CONSISTS OF FLOODPLAIN EXCAVATION AND GRADING TO RESTORE HYDROLOGIC CONNECTIVITY AND RIPARIAN HABITAT ALONG THE EVANS BRANCH OF THE ROUGE RIVER AS SHOWN IN THE DRAWINGS.

SCHEDULE OF WORK

THE CONTRACTOR SHALL SUBMIT A WRITTEN SCHEDULE OF CONSTRUCTION TO THE ECT PRIOR TO PROCEEDING WITH ANY WORK AND AT STAGES AS DESCRIBED IN THE CONTRACT DOCUMENTS. THE SCHEDULE SHOULD INCLUDE DATES OF MATERIAL AVAILABILITY FOR ITEMS SUCH AS GRAVEL, PLANTING MATERIALS, AND STRUCTURAL ITEMS. CLEARING AND GRUBBING SHALL TAKE PLACE DURING THE INDIANA BAT TREE CLEARING WINDOW, OCTOBER 1-MARCH 31, UNLESS OTHERWISE AUTHORIZED UNDER THE PERMITS. SIGNIFICANT COMPLETION OF CONSTRUCTION IS ANTICIPATED TO BE COMPLETED DURING THE LTU SUMMER SEMESTER PERIOD AND SHOULD TAKE PLACE DURING LOW FLOW PERIODS. THE WORK INVOLVES CONSTRUCTION WITHIN THE FLOODPLAIN OF THE ROUGE RIVER WHICH RESPONDS QUICKLY TO RAINFALL EVENTS. DORMANT PLANTINGS SUCH AS LIVE BRANCHES, LIVE FASCINES, WILLOW POSTS, AND LIVE STAKES SHOULD BE INSTALLED DURING THE DORMANT PERIOD FROM MID-NOVEMBER TO MID-MARCH DEPENDING ON WHEN AVERAGE DAILY TEMPERATURES ARE BELOW 50 DEGREES FAHRENHEIT.

CONSTRUCTION LAYOUT

HORIZONTAL AND VERTICAL CONTROL POINTS ARE SHOWN ON THE PLANS (NAD83 STATE PLANE MICHIGAN CENTRAL INTERNATIONAL FEET, NAVD 88 VERTICAL DATUM). CONTRACTOR SHALL SET NEW CONTROL POINTS AS REQUIRED TO MAINTAIN ADEQUATE VERTICAL AND HORIZONTAL CONTROL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION LAYOUT AND STAKEOUT NEEDS. LOCATIONS FOR FLOODPLAIN GRADING AND EXISTING INFRASTRUCTURE WILL BE FIELD-CHECKED TAKING INTO ACCOUNT BOTH UNDERGROUND AND OVERHEAD OBSTRUCTIONS AND CONFLICTS AND WILL BE APPROVED BY THE OWNER AND ENGINEER PRIOR TO BEGINNING WORK.

STAGING AREA

THE CONTRACTOR MAY USE THE PORTIONS OF THE PROPERTY SO DESIGNATED LAWRENCE TECHNOLOGICAL UNIVERSITY (LTU) AS A STAGING AREA FOR THE PROJECT. THE STAGING AREA MUST BE RESTORED TO A SATISFACTORY PRE-CONSTRUCTION CONDITION UPON COMPLETION OF WORK. TEMPORARY STORAGE OF MATERIALS AND EQUIPMENT IS LIMITED TO THIS AREA AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SECURITY AND STORAGE OF MATERIALS WITHIN THE PROJECT BOUNDARIES. OWNER WILL NOT BE RESPONSIBLE FOR LOST PRODUCT, VANDALISM, ETC. IN ANY WAY. ALL AREAS RETURNED TO PRE-CONSTRUCTION CONDITIONS SHALL BE AT THE CONDITION FOLLOWING COMPLETION OF THE WORK. ORANGE CONSTRUCTION BARRIER FENCING SHALL BE INSTALLED AROUND THE STAGING AREA AS NEEDED.

CONTRACTOR RESOURCES

THE CONTRACTOR SHALL HAVE ALL THE RESOURCES OF PERSONNEL, EQUIPMENT AND MATERIAL TO PROVIDE THE SERVICES THAT ARE DESCRIBED HEREIN. SUFFICIENT RESOURCES SHALL BE AVAILABLE AT THE CONTRACTOR'S PLACE OF BUSINESS TO PROVIDE COMPLETE REPAIR AND BACK-UP SERVICES FOR ALL ELEMENTS. THE OWNER SHALL NOT BE LIABLE FOR ANY DELAY IN CONSTRUCTION DUE TO INSUFFICIENT RESOURCES.

RECORD DRAWINGS

DURING CONSTRUCTION THE CONTRACTOR SHALL KEEP A SET OF DRAWINGS SHOWING ANY CHANGES OR CORRECTIONS IN RED INK. ONE COMPLETE SET OF RECORD DRAWINGS SHALL BE SUBMITTED TO THE OWNER AT THE COMPLETION OF WORK. IF NO CHANGES WERE MADE TO A DRAWING, 'NO CHANGE' SHALL BE NOTED ON THE DRAWING SHEET. ELEVATIONS FOR AS-BUILT GRADES, HABITAT FEATURES, AND CROSS-SECTIONS SHALL BE RECORDED TO ENSURE THAT THE SPECIFIED TOLERANCES ARE MET.

ACCESS TO PROJECT SITE

ACCESS TO THE PROJECT SITE SHALL BE AS INDICATED IN THE PLANS. ALL OTHER ACCESS POINTS MUST BE APPROVED BY OWNER PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL CONFIRM AVAILABILITY OF THE STAGING AND STORAGE LIMITS SHOWN ON THE DRAWINGS WITH OWNER PRIOR TO MOBILIZATION TO AVOID CONFLICTS WITH OWNER'S OPERATION OF THE PROPERTY.

IN-STREAM ACCESS

NO IN-STREAM WORK IS PROPOSED BELOW THE OHWL.

TOPOGRAPHIC AND BASEMAP INFORMATION

THE TOPOGRAPHIC INFORMATION SHOWN ON THE PLAN VIEWS IS BASED ON A TOPOGRAPHICAL SURVEY PERFORMED BY MIDWESTERN CONSULTING IN SUMMER 2021. SURVEY CONTROLS AND ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM (NAVD-1988). NORTHING AND EASTING LOCATIONS ARE REFERENCED TO THE NORTH AMERICAN HORIZONTAL DATUM (NAD-83), MICHIGAN STATE PLANE SOUTH PROJECTION, IN INTERNATIONAL FEET. MISCELLANEOUS INFORMATION FROM OTHER SOURCES, SUCH AS PIPE LOCATIONS AND PROPERTY LINES HAS BEEN ADDED FOR REFERENCE FROM PUBLIC DATA SOURCES AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

MONUMENTATION

THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF, AND/OR REPLACEMENT OF, ALL EXISTING PROPERTY MONUMENTATION THAT MAY BE DISTURBED OR DESTROYED DURING THE CONSTRUCTION OF THE IMPROVEMENTS. MONUMENTS SHALL BE REFERENCED AND RESET BY A LICENSED PROFESSIONAL SURVEYOR AT THE CONTRACTOR'S EXPENSE.

MATERIALS AND WORKMANSHIP

UNLESS OTHERWISE SPECIFIED, ALL MATERIAL SHALL BE NEW, AND BOTH WORKMANSHIP AND MATERIALS SHALL BE OF THE FIRST QUALITY AND PROPER AND SUFFICIENT FOR THE PURPOSE DESIGNATED. THE CONTRACTOR SHALL FURNISH, IF SO REQUIRED, SATISFACTORY EVIDENCE AS TO THE QUALITY OF MATERIALS AND WORKMANSHIP.

ALL ITEMS OF MATERIALS PROPOSED FOR SUBSTITUTION MUST BE APPROVED BY THE ENGINEER IN WRITING AND SHALL BE EQUIVALENT, OR SUPERIOR TO, THE ITEMS SPECIFIED IN THE CONTRACT DOCUMENTS. IF SAID SUBSTITUTION PROPOSED BY THE CONTRACTOR REQUIRES ENGINEERING REVISIONS, THE TEXT OF SUCH REVISIONS SHALL BE PAID FOR BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

MATERIALS SUCH AS ROCK, GRAVEL, SOIL, WOODY MATERIALS, OR VEGETATION PROCURED FROM ON-SITE SOURCES SHALL BE APPROVED BEFORE USE BY THE ENGINEER'S REPRESENTATIVE PRIOR TO INSTALLATION. NO PROCUREMENT OF ON-SITE MATERIALS SHALL LEAVE DEPRESSIONS OR SPOIL PILES OTHER THAN THOSE INDICATED IN THE DRAWINGS. ANY ITEMS REQUIRED, INCLUDING LABOR, EQUIPMENT, AND/OR MATERIALS, NOT SHOWN AS A SEPARATE PAY ITEM IN THESE DOCUMENTS, SHALL BE FURNISHED AND INSTALLED AS INCIDENTAL TO THE CONTRACT.

ALL WORK PERFORMED AND ALL MATERIALS FURNISHED SHALL BE IN CONFORMANCE WITH THE LINES, GRADES, CROSS-SECTIONS, DIMENSIONS AND MATERIAL REQUIREMENTS, INCLUDING TOLERANCES, SHOWN ON THE PLANS OR INDICATED IN THE SPECIFICATIONS. ANY DEVIATION FROM THE PLANS OR SPECIFICATIONS THAT MAY BE REQUIRED BY CONSTRUCTION CONDITIONS SHALL BE APPROVED BY THE ENGINEER PRIOR TO STARTING WORK.

TOLERANCES

THE FLOODPLAIN AND BANK GRADING HAS A TOLERANCE OF 0.5 FT VERTICAL AND 1.0 FT HORIZONTAL.

CARE OF WORK

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM WORK IN SUCH A MANNER AS NOT TO DAMAGE OR DESTROY ANY EXISTING FACILITIES NOT RELATED TO THE WORK. IF ANY SUCH DAMAGE DOES OCCUR DUE TO THE CONTRACTOR'S OPERATIONS, CONTRACTOR SHALL REPAIR OR REPLACE THE DAMAGES AT CONTRACTOR'S EXPENSE.

IT IS EMPHASIZED THAT REMOVAL OF VEGETATION IS LIMITED TO APPROVED AREAS ONLY AND DAMAGE TO REMAINING VEGETATION, ESPECIALLY TREES, SHALL BE AVOIDED TO THE EXTENT PRACTICABLE. ALL DAMAGES MUST BE REPAIRED OR DAMAGED VEGETATION MUST BE REPLACED. THE CONTRACTOR SHALL CONFINE EQUIPMENT, TOOLS, THE STORAGE OF MATERIALS AND THE OPERATION OF WORKMEN WITHIN THE WORK LIMITS AS SHOWN ON THE PLANS.

NOTICE

OWNER OR ITS REPRESENTATIVE SHALL HAVE 48 HOURS NOTICE AND THE OPPORTUNITY TO INSPECT AND APPROVE EXCAVATIONS BEFORE THE PLACEMENT OF WOOD STRUCTURES, SOIL AND/OR STONE MATERIAL.

CONSTRUCTION LIMITS

THE CONSTRUCTION LIMITS ARE SHOWN ON THE CONSTRUCTION PLANS. NO STORAGE, STAGING, TRAVEL OR CONSTRUCTION IS ALLOWED OUTSIDE THESE LIMITS EXCEPT BY PERMISSION OF THE OWNER AND AS ALLOWED BY APPLICABLE PROJECT PERMITS.

TRANSITIONS

WHERE NEW WORK ABUTS OR ALIGNS WITH EXISTING GROUND OR OTHER FEATURES, PERFORM A SMOOTH AND EVEN TRANSITION. PATCHWORK SHALL MATCH EXISTING ADJACENT WORK IN TEXTURE AND APPEARANCE.

HISTORICAL PRESERVATION

ALL CONSTRUCTION ACTIVITIES WILL BE STOPPED IMMEDIATELY IF ARCHEOLOGICAL ARTIFACTS ARE DISCOVERED DURING EXCAVATION. OWNER SHALL BE NOTIFIED IMMEDIATELY IF ANY POTENTIAL ARCHEOLOGICAL ARTIFACTS ARE ENCOUNTERED DURING CONSTRUCTION.

USE OF EXPLOSIVES

THE USE OF EXPLOSIVES IS NOT PERMITTED ON THIS PROJECT.

TRAFFIC CONTROL

AT A MINIMUM, THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TRAFFIC CONTROL SIGNS, BARRICADES, BARRIERS, WARNING LIGHTS AND FLAGGERS AS NECESSARY TO MEET THE STANDARDS FOR TRAFFIC CONTROL, AS OUTLINED IN THE MICHIGAN STATE POLICE UNIFORM TRAFFIC CONTROL CODE, LATEST REVISION, OR AS NOTED IN THE PERMITS AND THE CONTRACT. ADDITIONAL TRAFFIC CONTROL MEASURES, INCLUDING SIGNS, SHALL BE FURNISHED AT NO ADDITIONAL COST TO THE OWNER. UNLESS OTHERWISE SHOWN IN THE BID DOCUMENTS, ALL ROADS AND STREETS, AFFECTED BY CONSTRUCTION, SHALL BE KEPT CLEAN FROM MUD OR DEBRIS AND OPEN TO ALL TRAFFIC BY THE CONTRACTOR. THE CONTRACTOR SHALL KEEP THE PORTION OF THE PROJECT BEING USED BY PUBLIC TRAFFIC IN SUCH CONDITION THAT TRAFFIC WILL BE ADEQUATELY AND SAFETY ACCOMMODATED.

DEBRIS

ALL VISIBLE BROKEN CONCRETE, BRICK, DEBRIS, PLASTIC, TRASH, STEEL, TIRES, AND OTHER MAN-MADE MATERIALS SHALL BE REMOVED FROM THE STREAM AND BANKS AND REMOVED FROM THE SITE. THIS WORK SHALL BE INCIDENTAL TO THE COST OF EXCAVATION.

UNDERGROUND STRUCTURES AND UTILITIES

EXISTING UTILITIES, STRUCTURES, DRAINS, ETC., THAT MAY BE ENCOUNTERED DURING CONSTRUCTION ARE SHOWN ON THE PLANS TO THE EXTENT KNOWN. THE LOCATIONS SHOWN ON THE PLANS ARE TAKEN FROM EXISTING RECORDS AND ARE BELIEVED TO BE THE BEST INFORMATION AVAILABLE. IT IS EXPECTED THAT THERE MAY BE SOME DISCREPANCIES OR OMISSIONS IN THE LOCATIONS AND QUANTITIES SHOWN. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UNDERGROUND STRUCTURES AND UTILITIES PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL AVOID DAMAGING THE EXISTING UTILITIES SERVICES UNLESS COORDINATED WITH THE UTILITY AND THE OWNER. THE CONTRACTOR SHALL REPAIR AND COVER ANY UTILITIES ACCIDENTALLY EXPOSED AND/OR DAMAGED AS A RESULT OF THE WORK.

THE CONTRACTOR SHALL NOTIFY MICHIGAN MISS DIG 811, 48 HOURS IN ADVANCE OF ANY CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO ANY PERSONNEL BEING ALLOWED TO ENTER INTO AN ACTIVE MANHOLE OR SEWER. ALL PRECAUTIONS ARE DELINEATED IN THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATIONS

(OSHA) "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION" SHALL BE FOLLOWED.

THE CONTRACTOR SHALL PROTECT PRIVATE STRUCTURES AND UTILITY SERVICE CONNECTIONS, WHETHER IN RIGHT-OF-WAY/EASEMENT OR ON PRIVATE PROPERTY, INCLUDING SEWER FACILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF ANY STRUCTURE OR UTILITY ENCOUNTERED ON THE SITE. THE COST OF REPAIR, REMOVAL, REPLACEMENT, RELOCATION, ETC. OF SUCH FACILITIES ARISING BECAUSE OF CARELESSNESS OR NEGLIGENCE ON THE PART OF THE CONTRACTOR SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

SHOULD UNCHARTED OR INCORRECTLY CHARTED PIPING OR OTHER UTILITIES BE ENCOUNTERED, THE CONTRACTOR SHALL IMMEDIATELY CONTACT THE OWNER.

NOTES

- THE CONTRACTOR SHALL PROTECT AND MINIMIZE IMPACTS TO EXISTING NATIVE VEGETATION AND/OR WETLAND AREAS WHERE GRADING IS NOT PROPOSED DURING CONSTRUCTION.
- VEHICLE ACCESS AND DISTURBANCE SHALL BE LIMITED TO APPROVED ACCESS, HAUL ROADS, AND STAGING AREAS UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE OWNER. PRELIMINARY ACCESS ROUTES ARE SHOWN ON THE PLANS. ADDITIONAL ACCESS ROUTES SHALL BE COORDINATED WITH THE ENGINEER'S REPRESENTATIVE IN THE FIELD. THE CONTRACTOR SHALL MAKE THEIR OWN DETERMINATION OF SIZE AND QUANTITY OF CONSTRUCTION MATS THAT MAY BE NECESSARY BASED ON THEIR MEANS AND METHODS AT NO ADDITIONAL COST.

PRELIMINARY CONSTRUCTION SEQUENCE

- INSTALL CONSTRUCTION BARRIER FENCE AND SIGNAGE
- COMPLETE CLEARING AND GRUBBING OF TREES AND SHRUBS DURING THE APPROPRIATE BAT WINDOW PER PERMITS. MINIMIZE THE USE OF CHAINSAWS AND KEEP ROOTWADS OF HARDWOOD TREES INTACT. RETAIN SUITABLE WOODY MATERIALS. LOGS WITHOUT EXPOSED CUT FACES ARE PREFERRED FOR USE IN CONSTRUCTING HABITAT FEATURES. DISPOSE OF EXCESS WOODY MATERIALS PER SPECIFICATIONS.
- SORT, STOCKPILE, AND STABILIZE TOPSOIL FOR REUSE. EXCAVATED SUBSOILS AND PHRAGMITES ROOTS SHALL BE LEGALLY DISPOSED OF BY THE CONTRACTOR.
- ROUGH GRADE FLOODPLAIN AREAS AND FEATURES. INSTALL TEMPORARY SEDIMENT CONTROL MEASURES. ANY DEWATERING SHALL BE DISCHARGE TO A GEOTEXTILE FILTER BAG.
- REMOVE STORM SEWER END-SECTION AND INSTALL CATCHBASIN.
- REPLACE TOPSOIL, CONSTRUCT HABITAT FEATURES, AND FINISH GRADE FLOODPLAIN AREAS.
- SEED ALL DISTURBED AREAS WITH THE APPROPRIATE SEED MIXES AND STABILIZE WITH THE SPECIFIED MATERIALS. PLANTINGS SHALL BE INSTALLED DURING THE SPECIFIED PLANTING SEASON AND MAINTAIN VEGETATION UNTIL VEGETATION IS ADEQUATELY ESTABLISHED.

SOIL EROSION AND SEDIMENT CONTROL PLAN

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEVELOPING AND SUBMITTING THE SOIL EROSION AND SEDIMENT CONTROL (SESC) PERMIT TO THE CITY OF SOUTHFIELD. THE CONDITIONS OF THE SESC PERMIT SHALL BE MET DURING ALL STAGES OF CONSTRUCTION. THE LOCATION AND TIMING OF ALL EROSION AND SEDIMENT CONTROL ITEMS SHALL BE FIELD-ADJUSTED TO PREVENT SIGNIFICANT IMPACTS ON RECEIVING WATERS. IMPLEMENTATION OF THIS SESC PLAN SHALL CONTINUE THROUGHOUT THE DURATION OF THE PROJECT OR UNTIL SUCH TIME THAT ALL DISTURBED AREAS ARE STABILIZED. ALL REASONABLE ATTEMPTS SHOULD BE MADE TO MINIMIZE THE TOTAL AREA AND DURATION OF DISTURBED LAND.

TEMPORARY SOIL EROSION AND SEDIMENT CONTROL

- THE CONTRACTOR SHALL STAY WITHIN THE LIMITS OF DISTURBANCE. MINIMIZE THE AREA AND DURATION OF DISTURBANCE. USE REASONABLE MEASURE TO AVOID SOIL COMPACTION BY HEAVY EQUIPMENT. THE USE OF CONSTRUCTION MATS OR OTHER MEASURES SHALL BE NECESSARY IN SOME LOCATIONS.
- CONSTRUCT TEMPORARY AGGREGATE ACCESS AREAS AND CONSTRUCTION FENCING. REMOVE SEDIMENT FROM PAVED STREETS DUE TO TRACKING AT THE END OF EACH WORK DAY, AT A MINIMUM.
- USE TEMPORARY SEDIMENT CONTROLS SUCH AS MDOT SILT FENCE AS NECESSARY OF REQUIRED BY THE CITY. ADDITIONAL AND/OR ALTERNATIVE EROSION AND SEDIMENT CONTROL MEASURES MAY BE REQUIRED TO MEET LOCAL SITE CONDITIONS AS THE CONSTRUCTION PROGRESSES. ALL DEWATERING MUST BE DISCHARGED TO GEOTEXTILE DEWATERING BAGS ON A STABLE SURFACE.
- STOCKPILE EXCAVATION MATERIALS AWAY FROM THE EDGE OF STREAM. STOCKPILES TO REMAIN FOR MORE THAN ONE WEEK SHALL BE CONTAINED WITH SILT FENCING.
- TEMPORARY SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED AND MAINTAINED BY THE CONTRACTOR AT LEAST WEEKLY OR AFTER A RUNOFF PRODUCING RAINFALL EVENT.
- SEED AND STABILIZE DISTURBED AREAS WITHIN 5 DAYS OF FINISHED GRADING. REMOVE TEMPORARY SEDIMENT CONTROL MEASURES UPON COMPLETION OF GRADING AND BANK STABILIZATION.
- COUNTY SOIL SURVEY DATA INDICATES THE FOLLOWING: SLOAN SILT LOAM



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OURS TO PROTECT

Working together, restoring the river

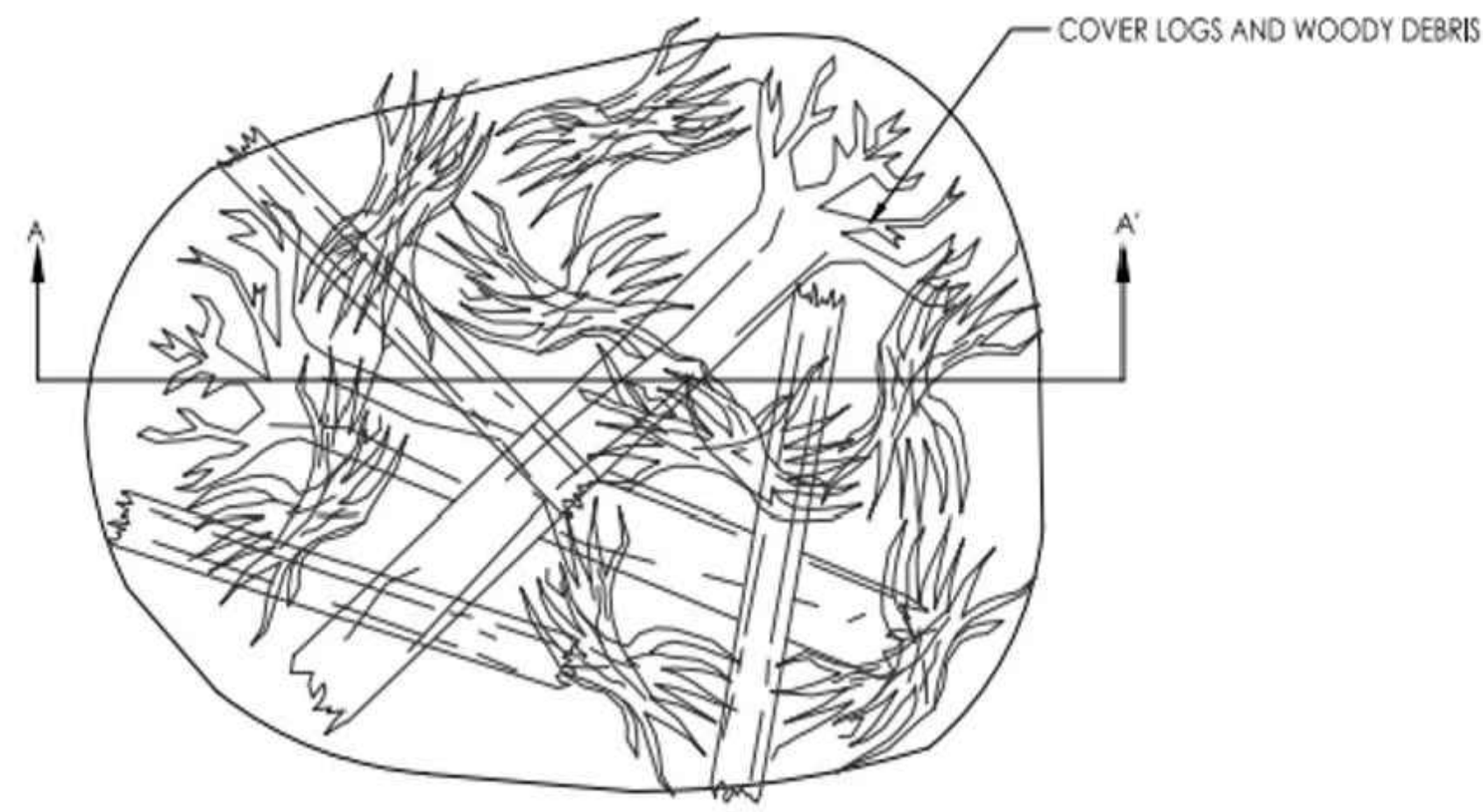
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LTU WETLAND

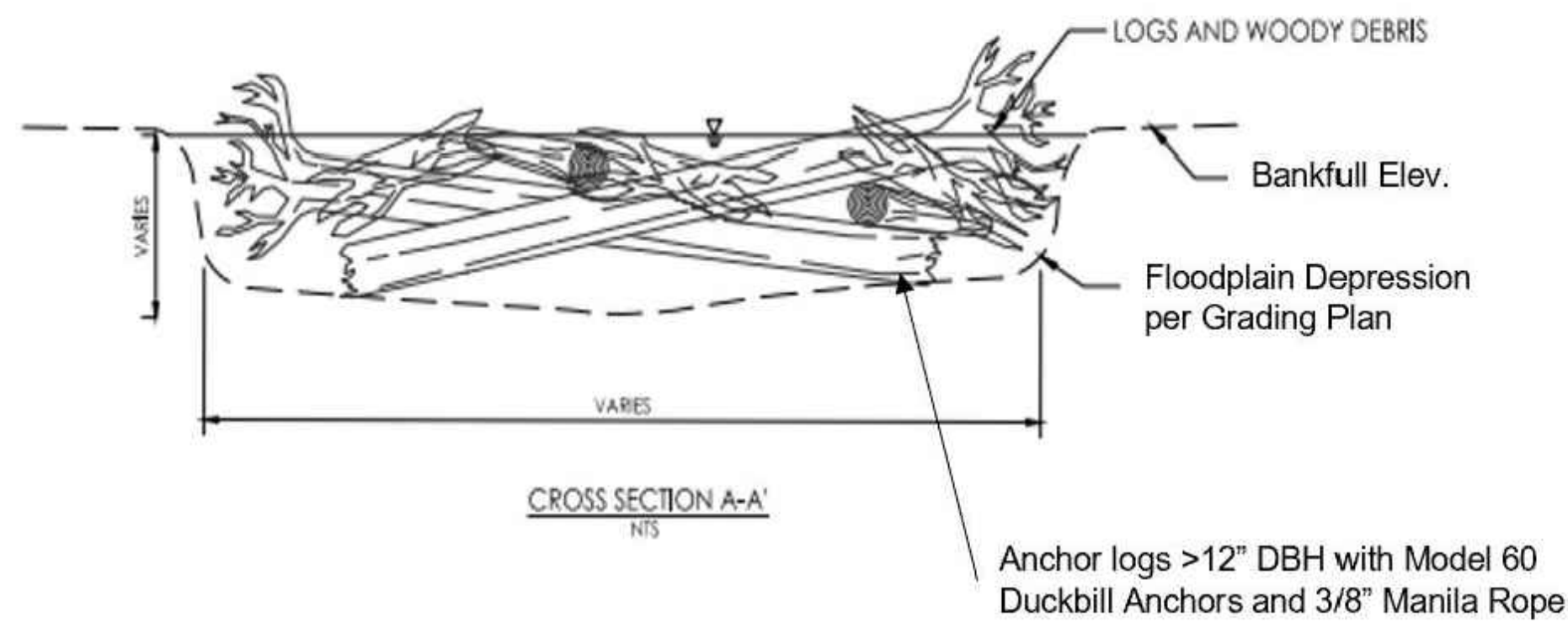
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NOTES

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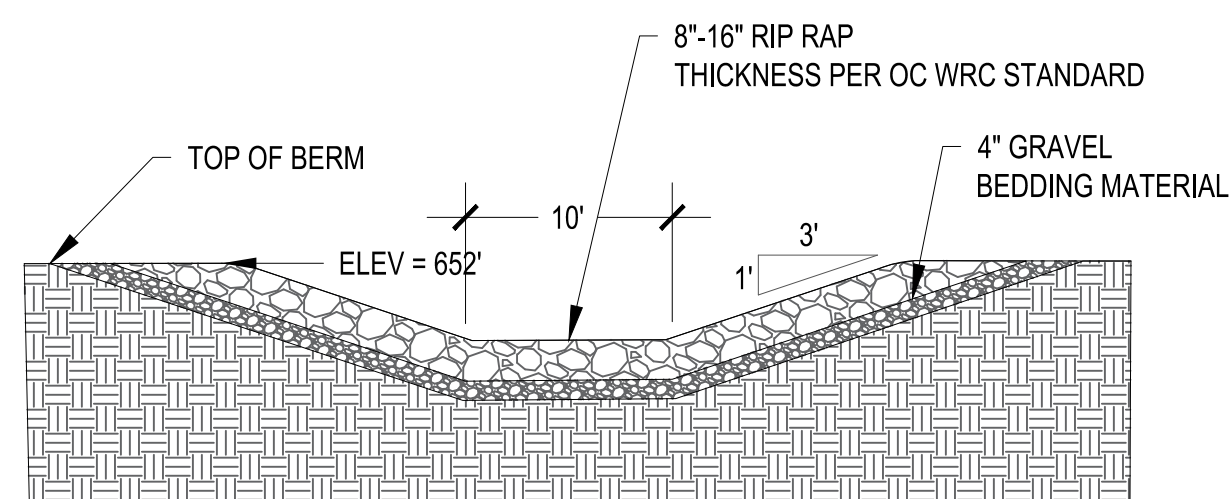


DETAIL VIEW
N15

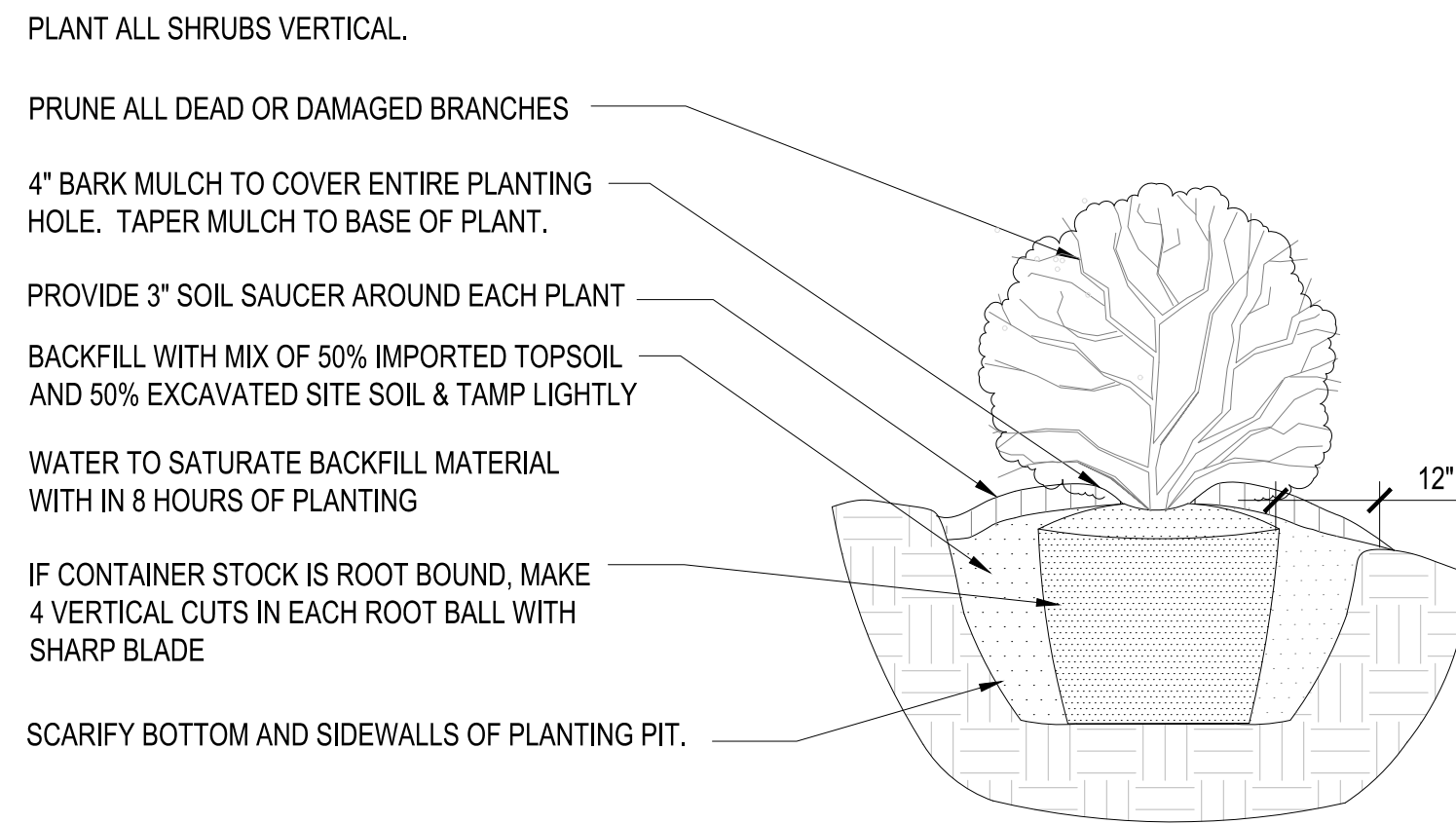


CROSS SECTION A-A'
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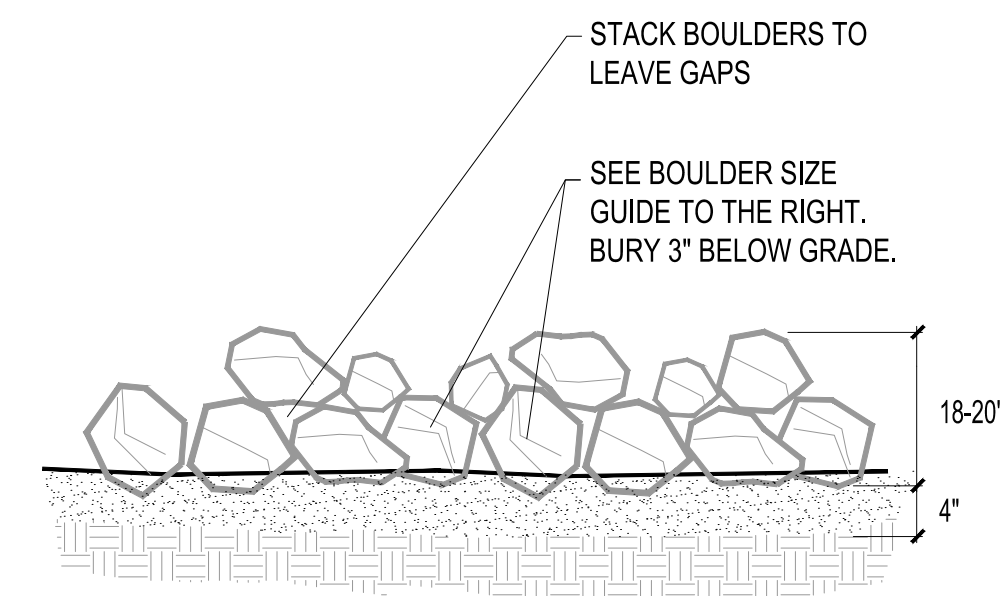
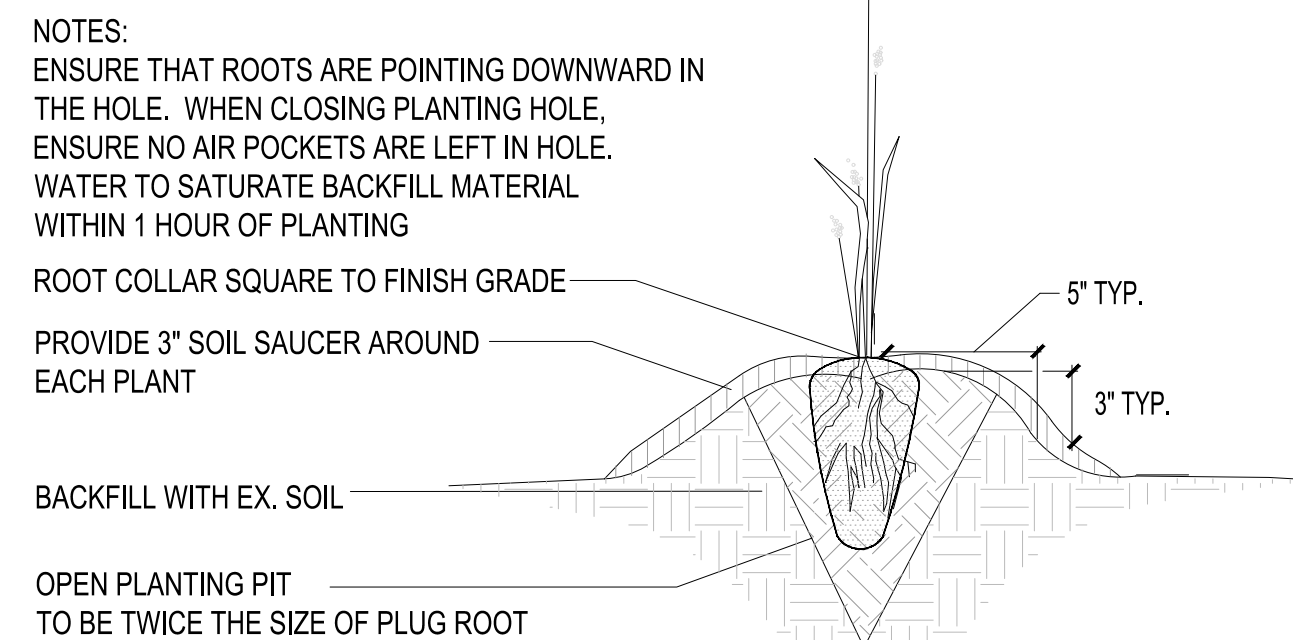
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9 WOODY HABITAT
NOT TO SCALE



6
9 EARTHEN SPILLWAY WITH RIP RAP
NOT TO SCALE

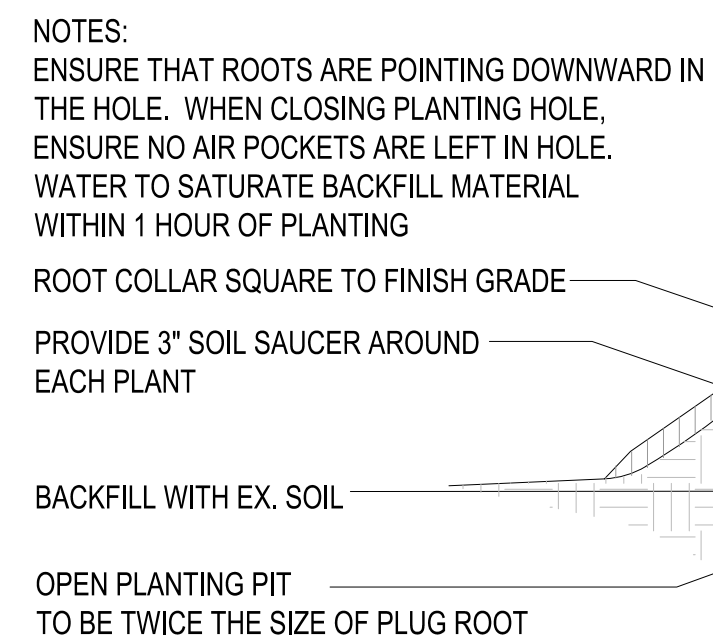


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9 SHRUB PLANTING DETAIL
NOT TO SCALE



3
9 TREE PLANTING DETAIL
NOT TO SCALE

5
9 ROCK HABITAT - TYPICAL
NOT TO SCALE



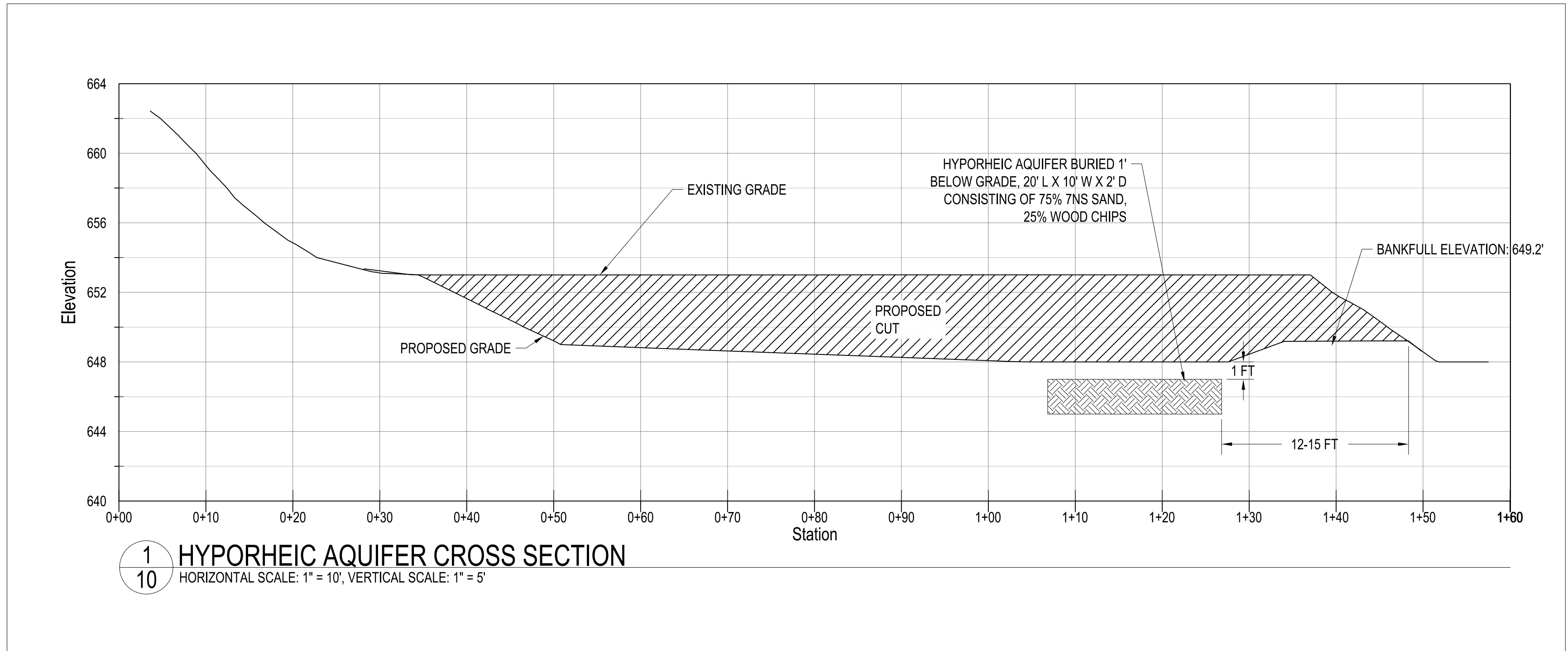
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9 PLUG PLANTING DETAIL
NOT TO SCALE

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DETAILS 1

SCALE: 1/8" = 1'-0" (UNLESS OTHERWISE NOTED) DATE: 02/15/2023



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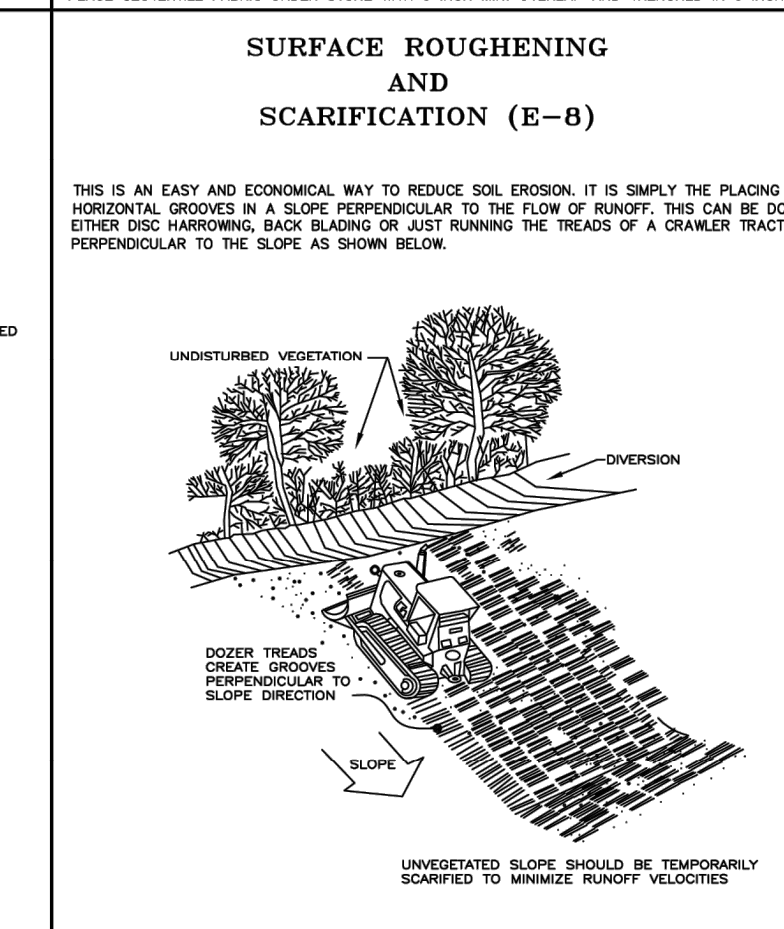
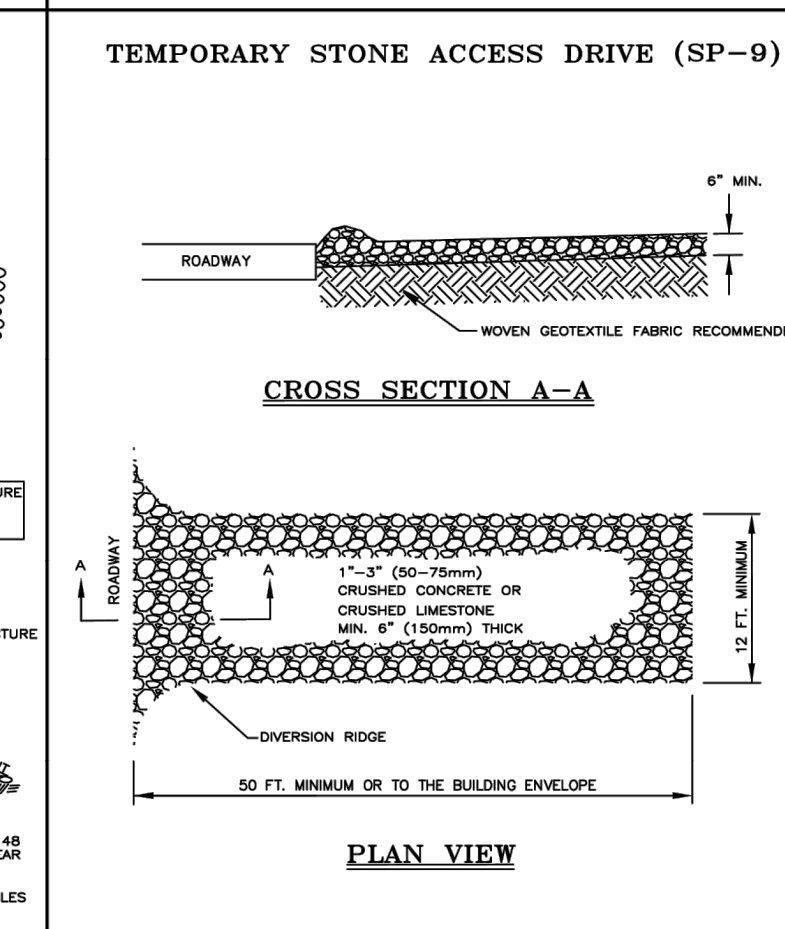
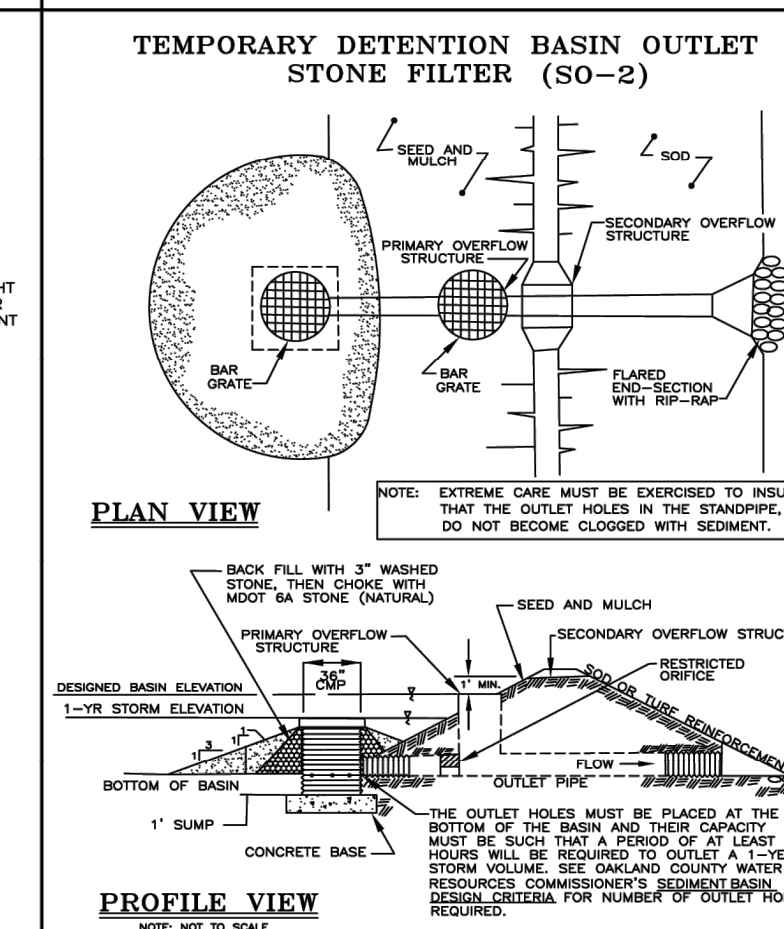
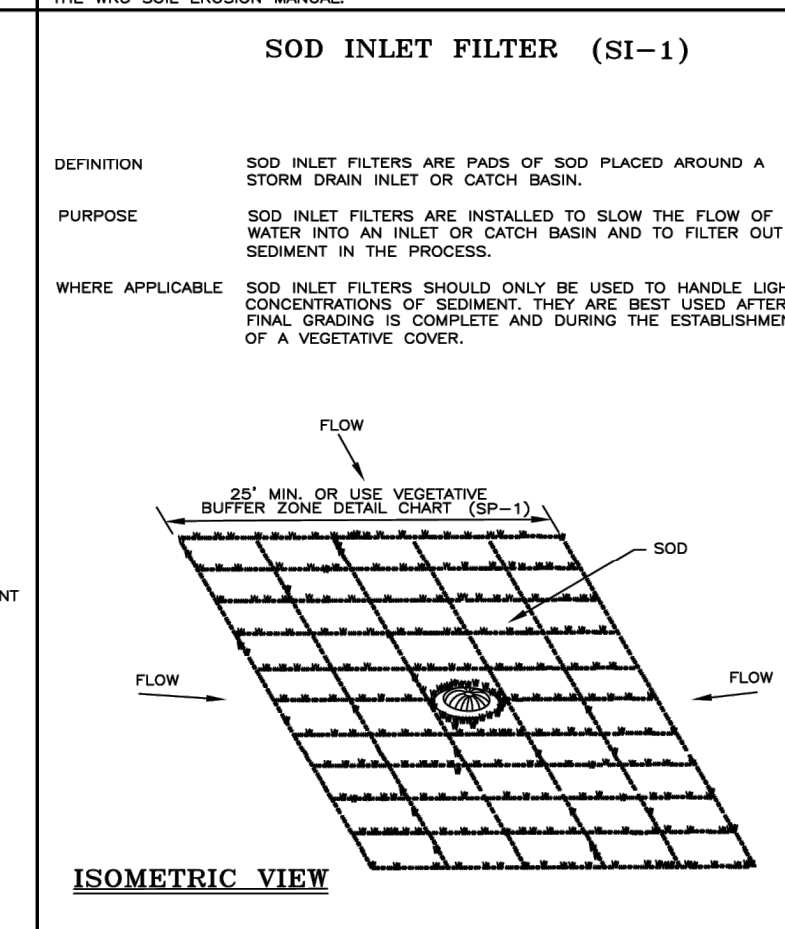
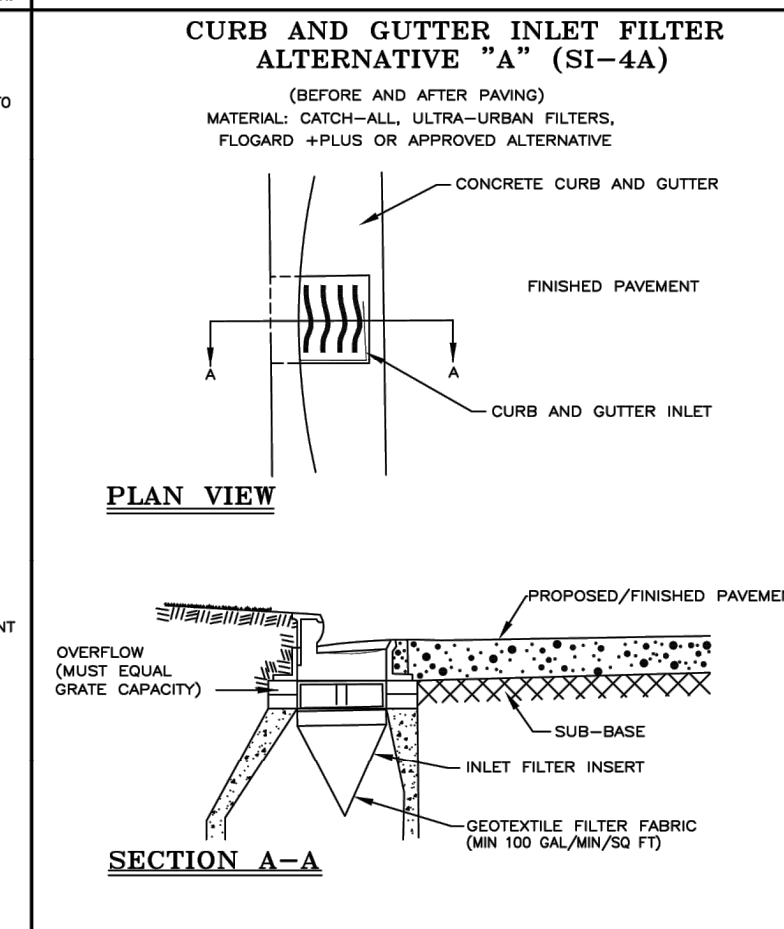
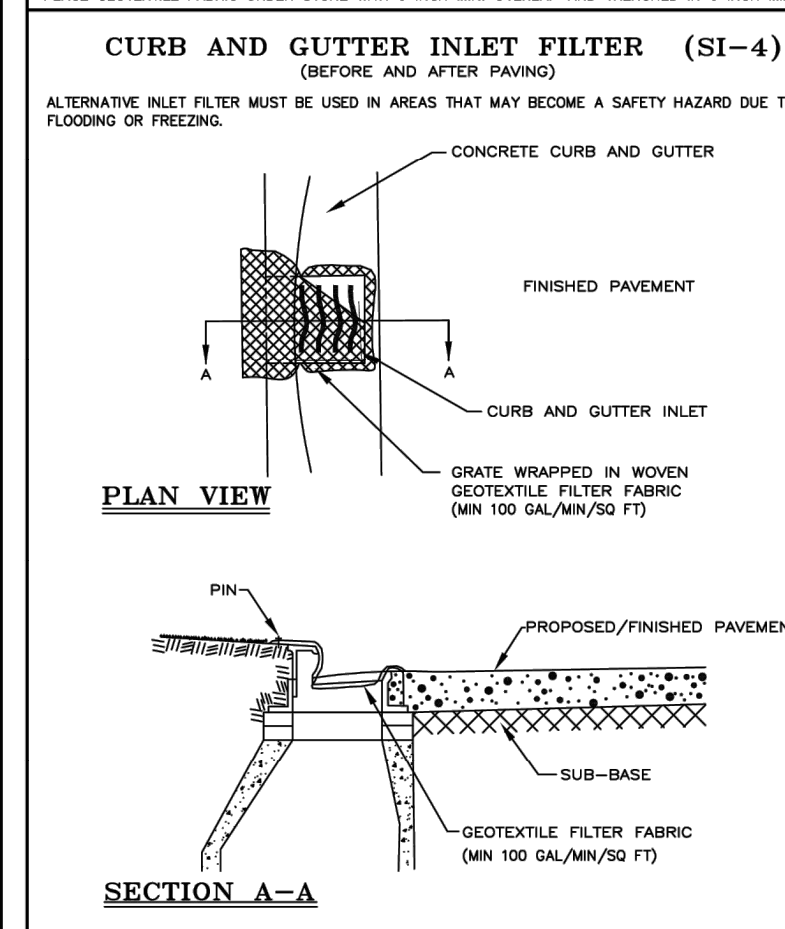
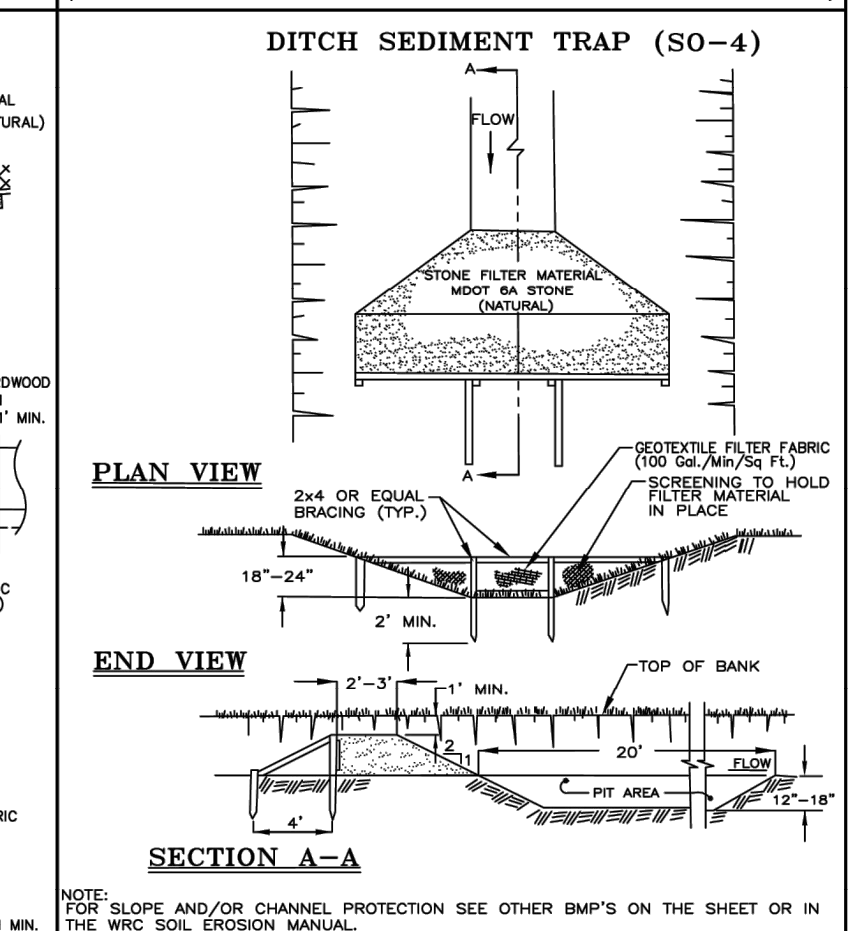
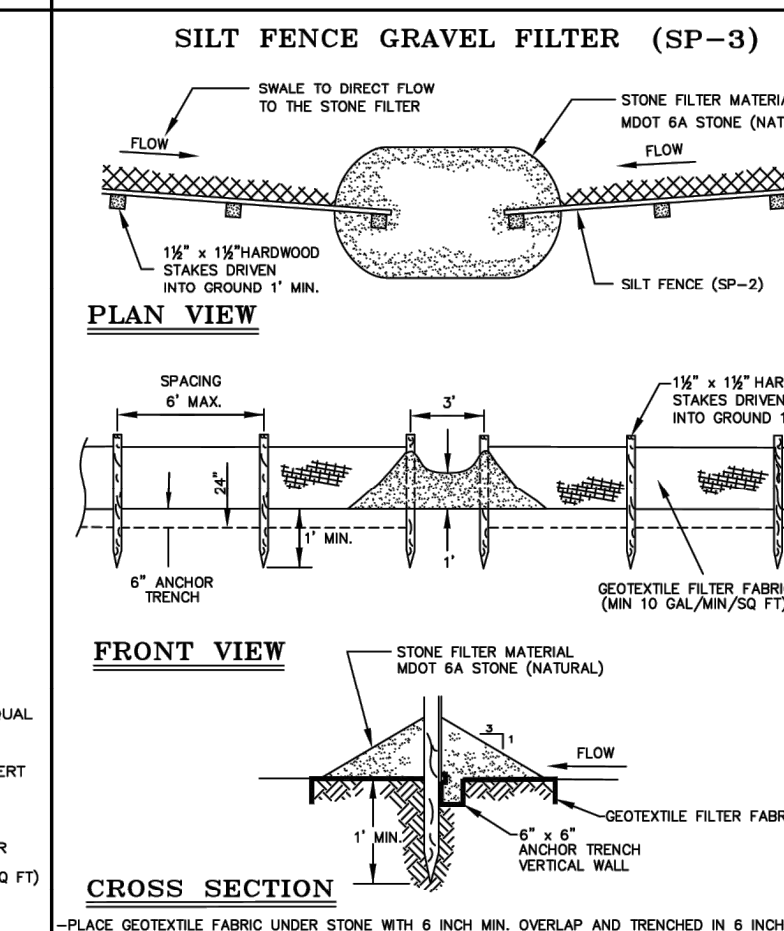
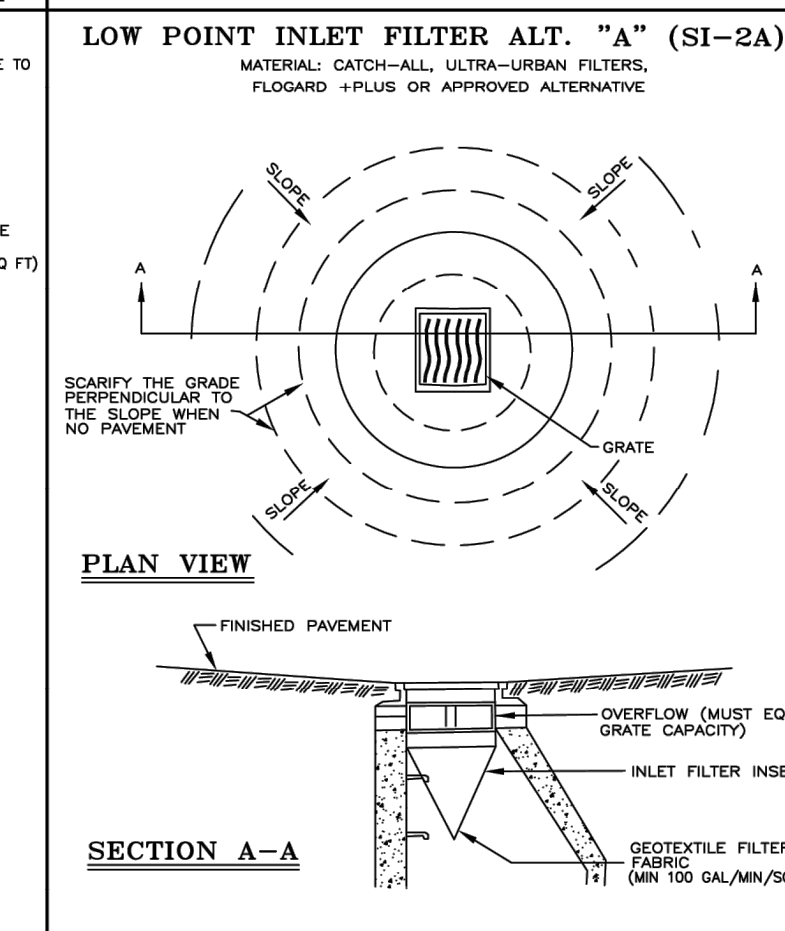
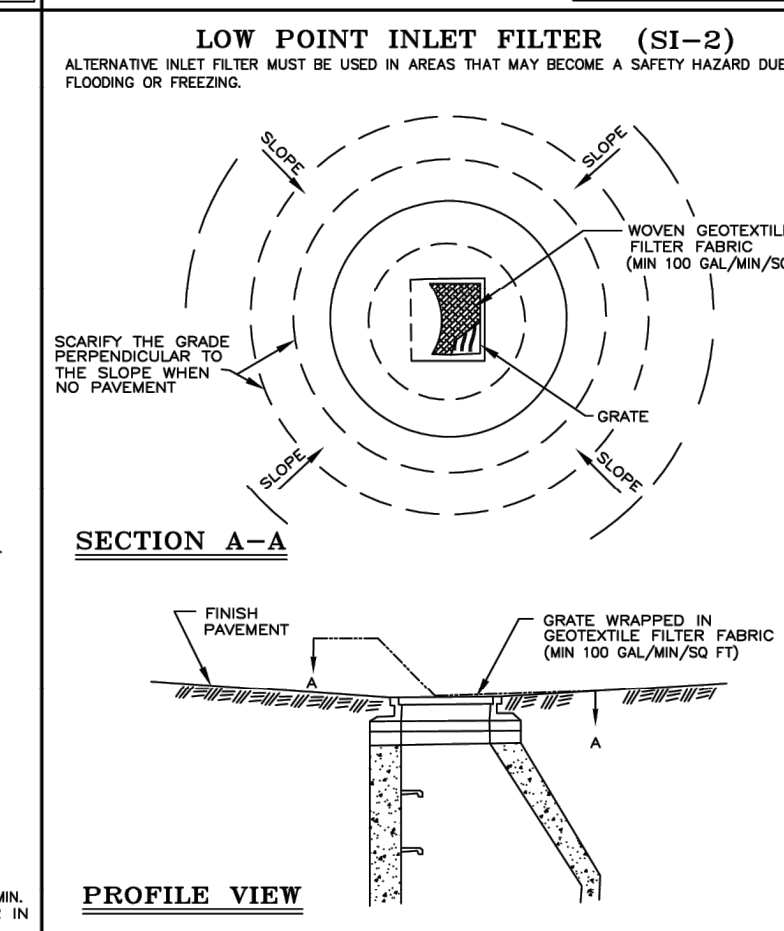
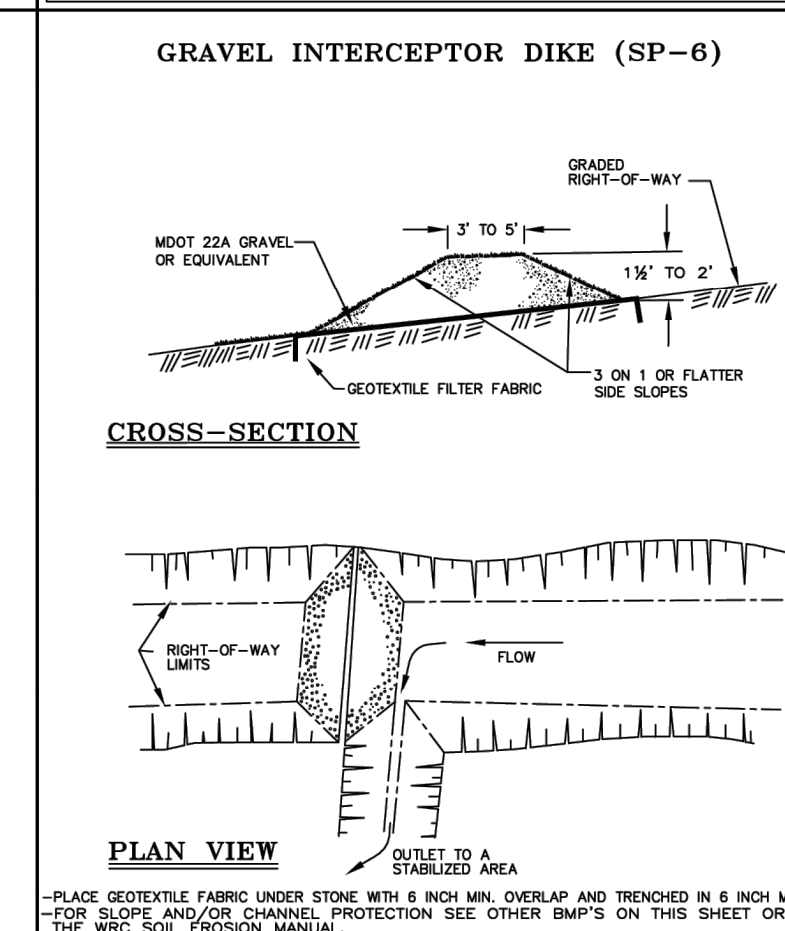
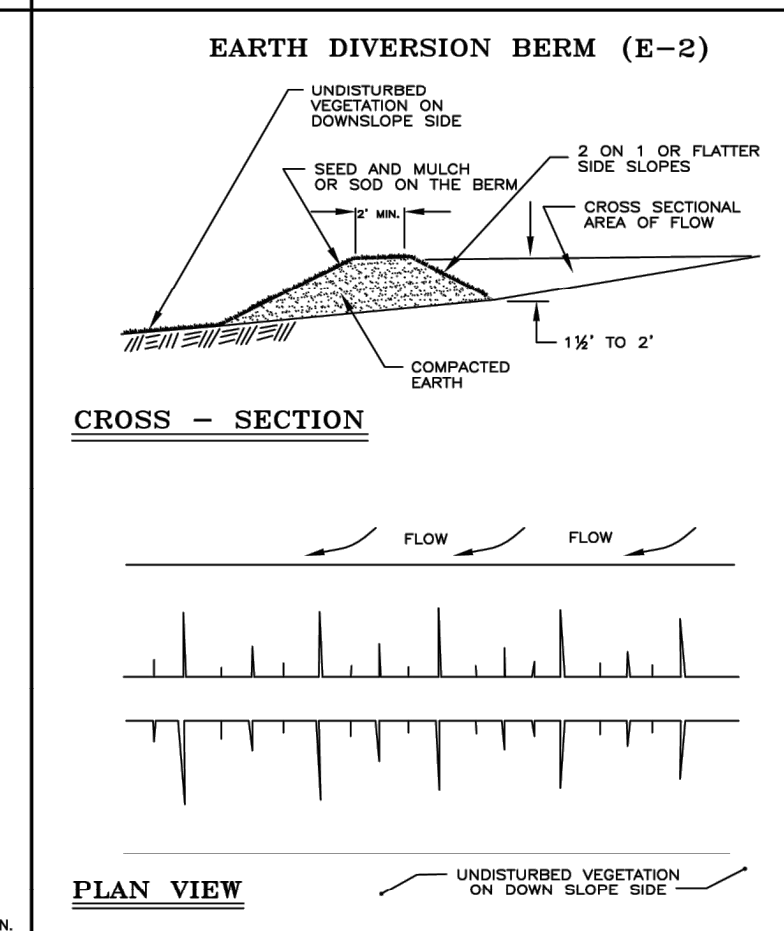
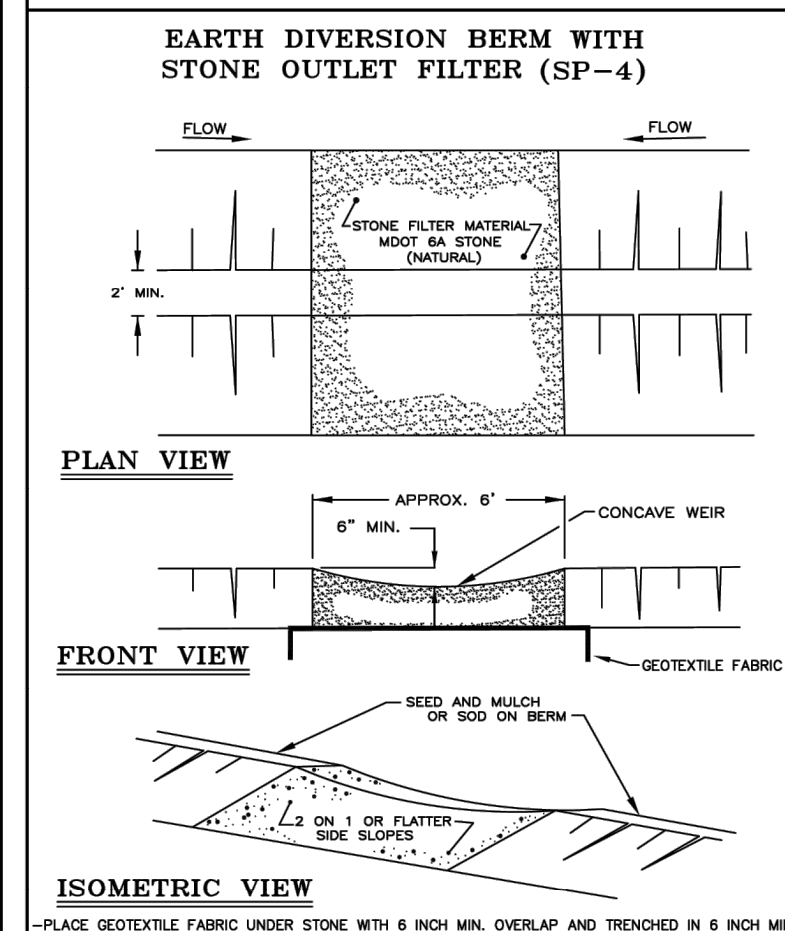
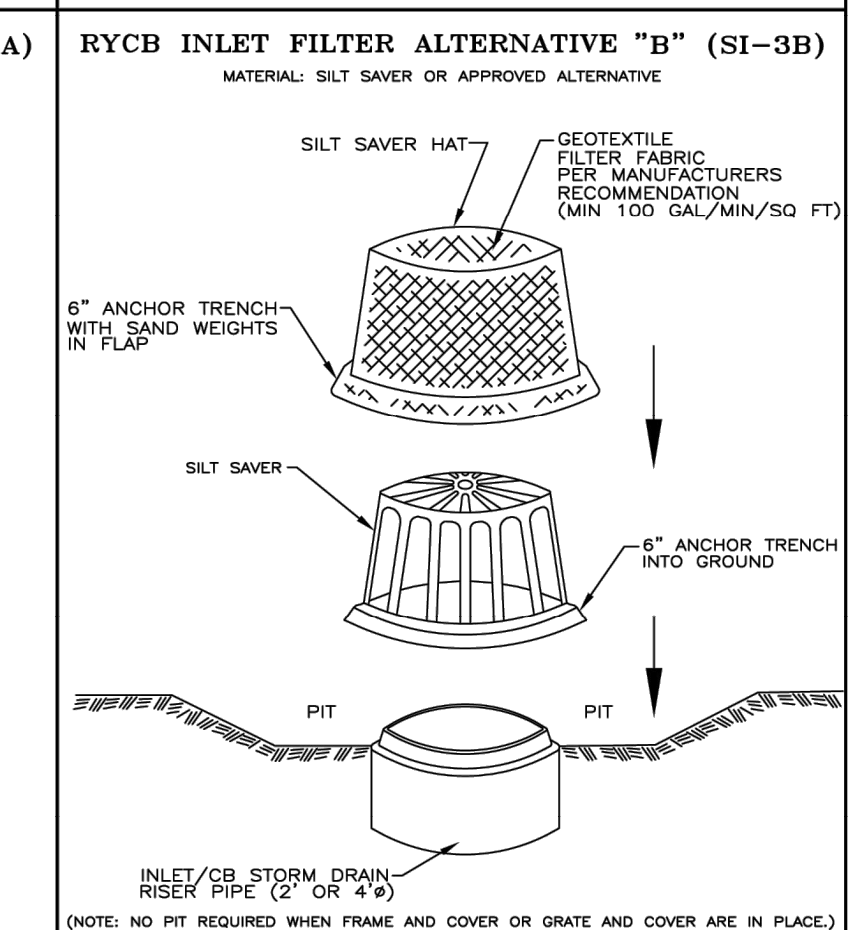
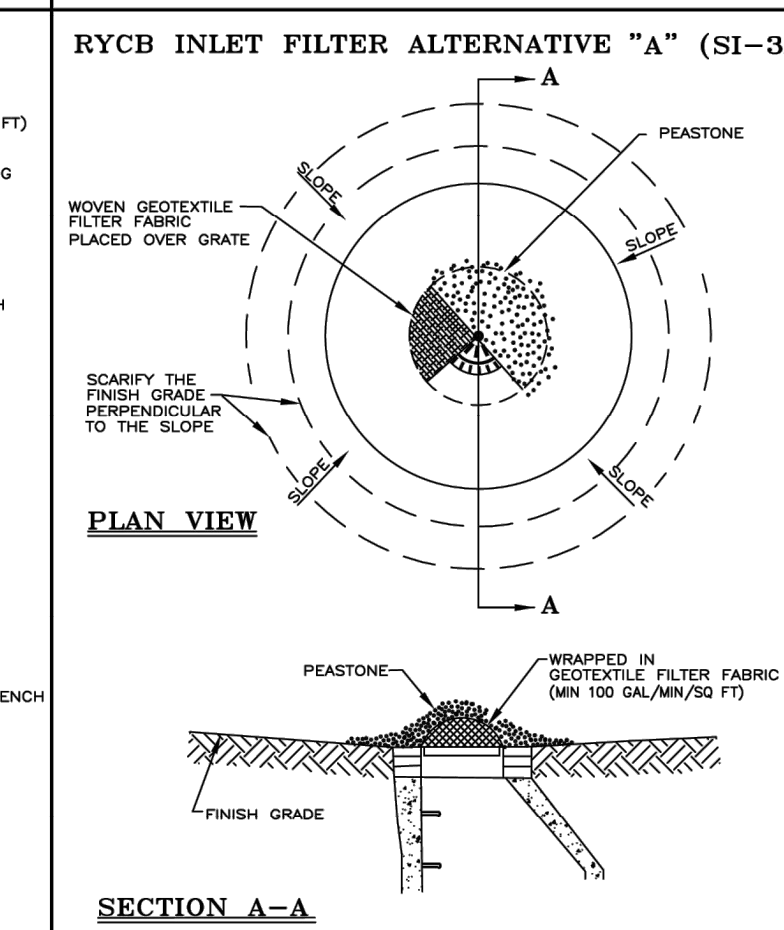
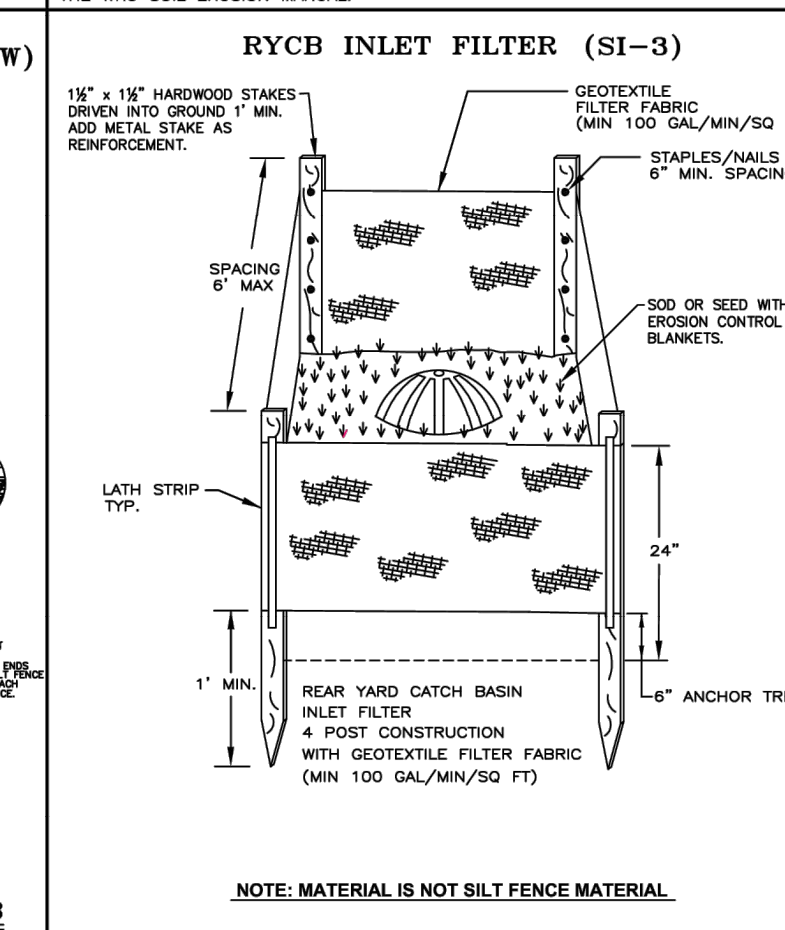
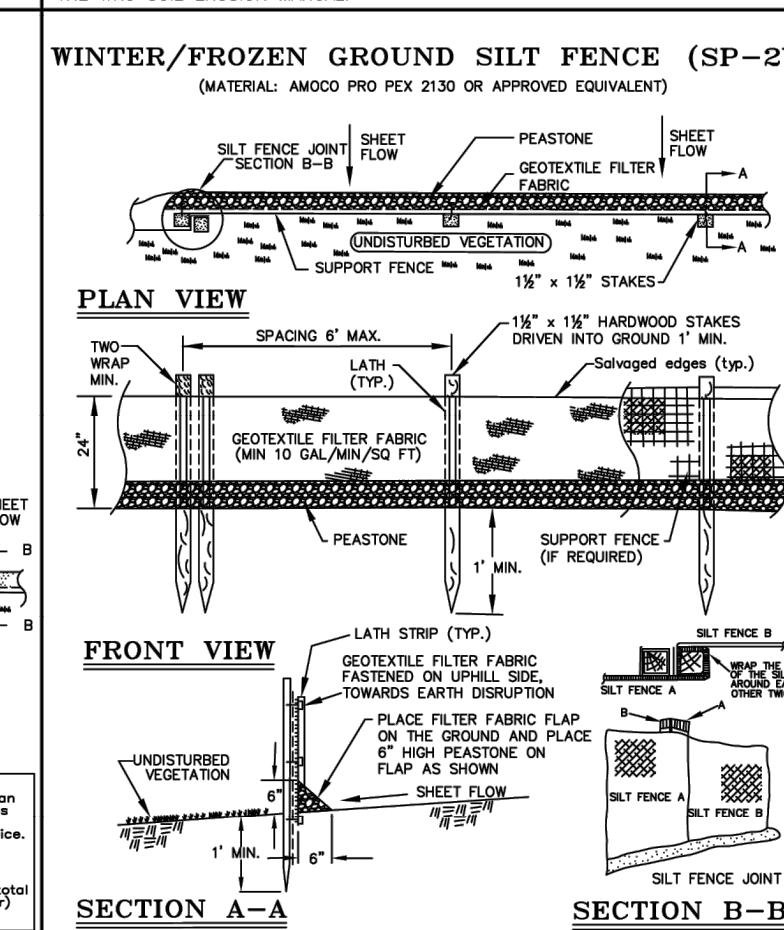
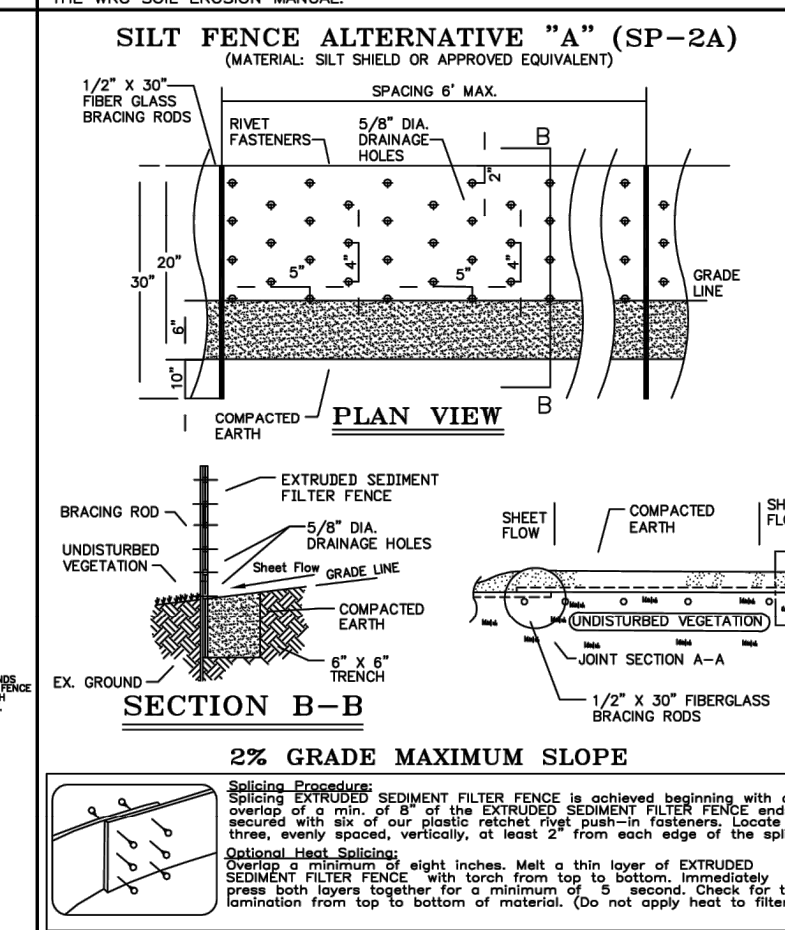
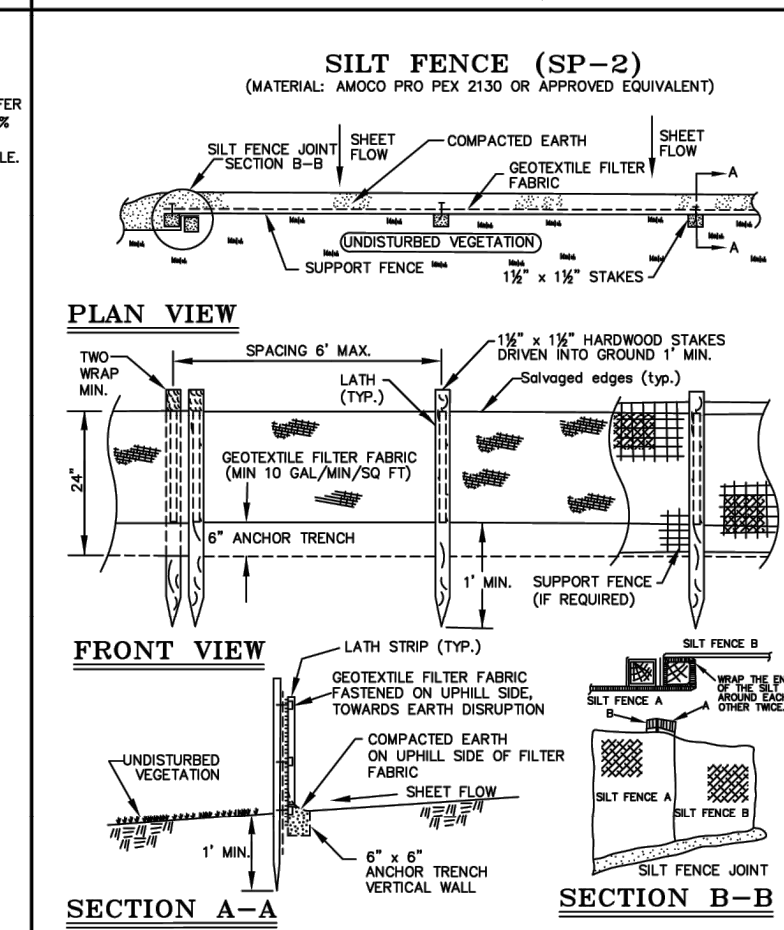
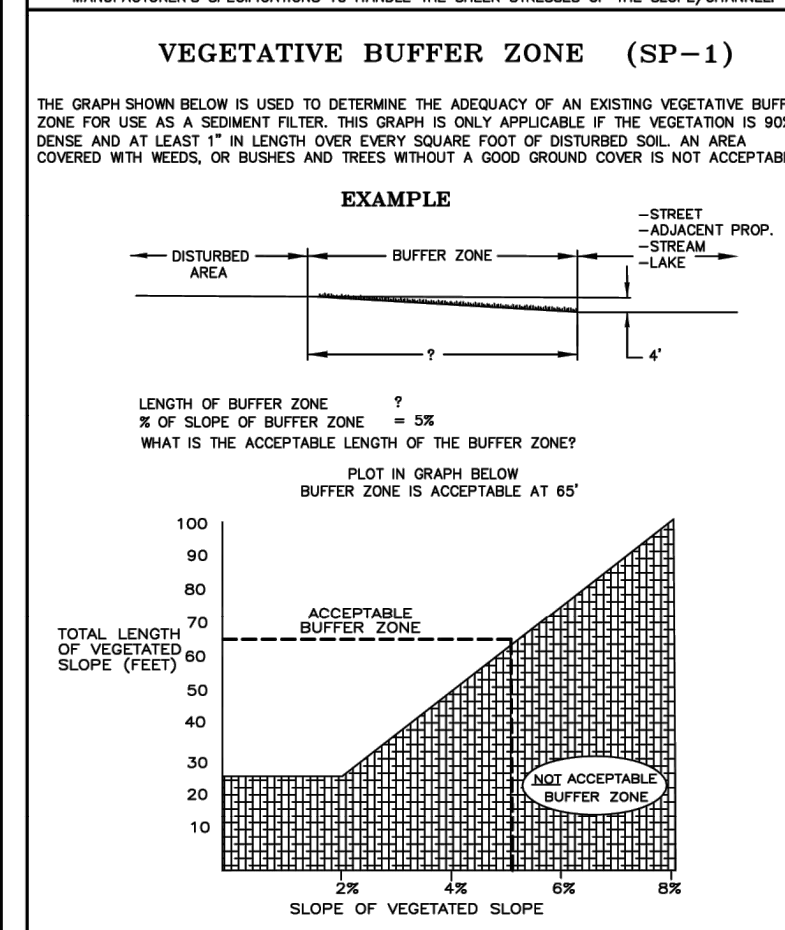
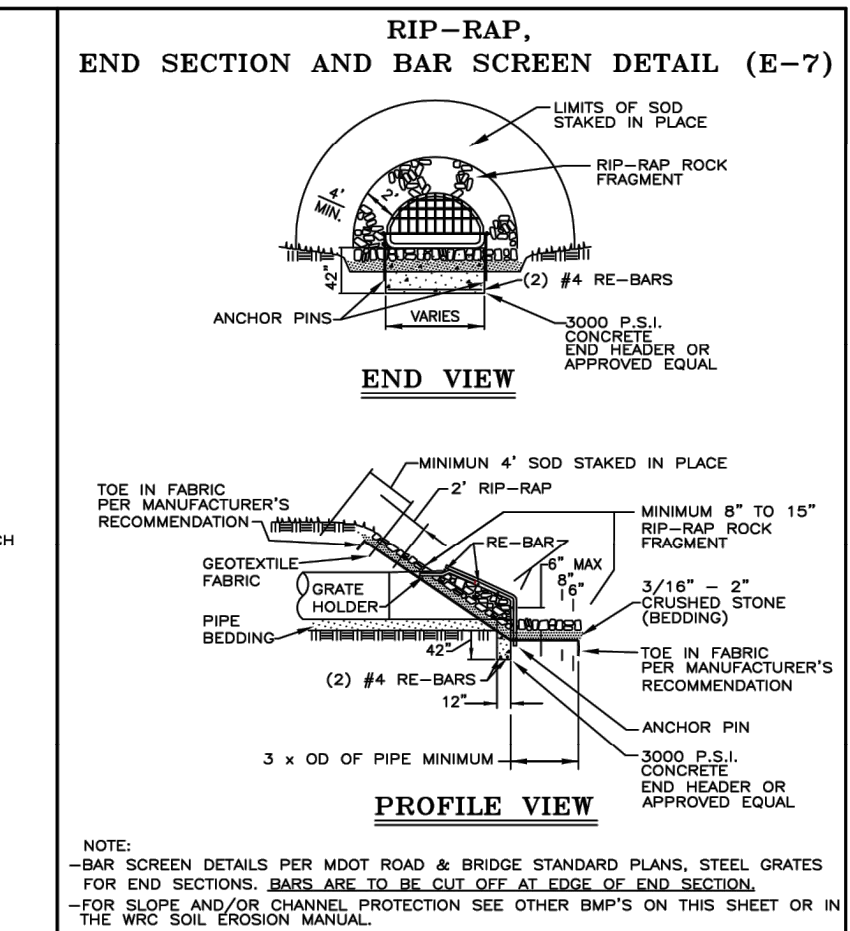
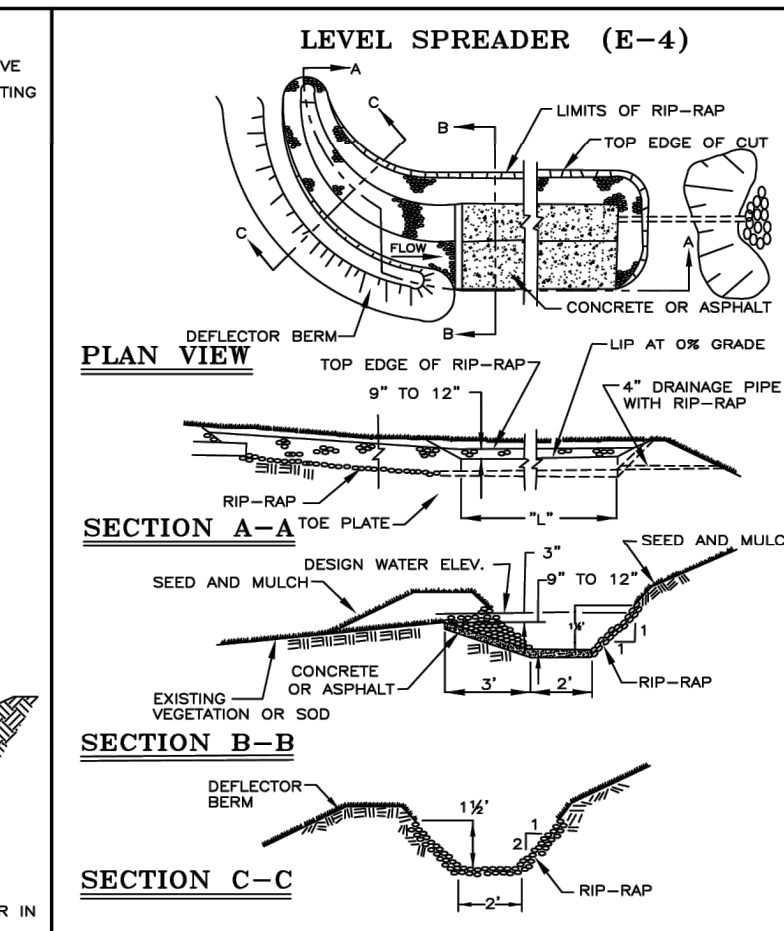
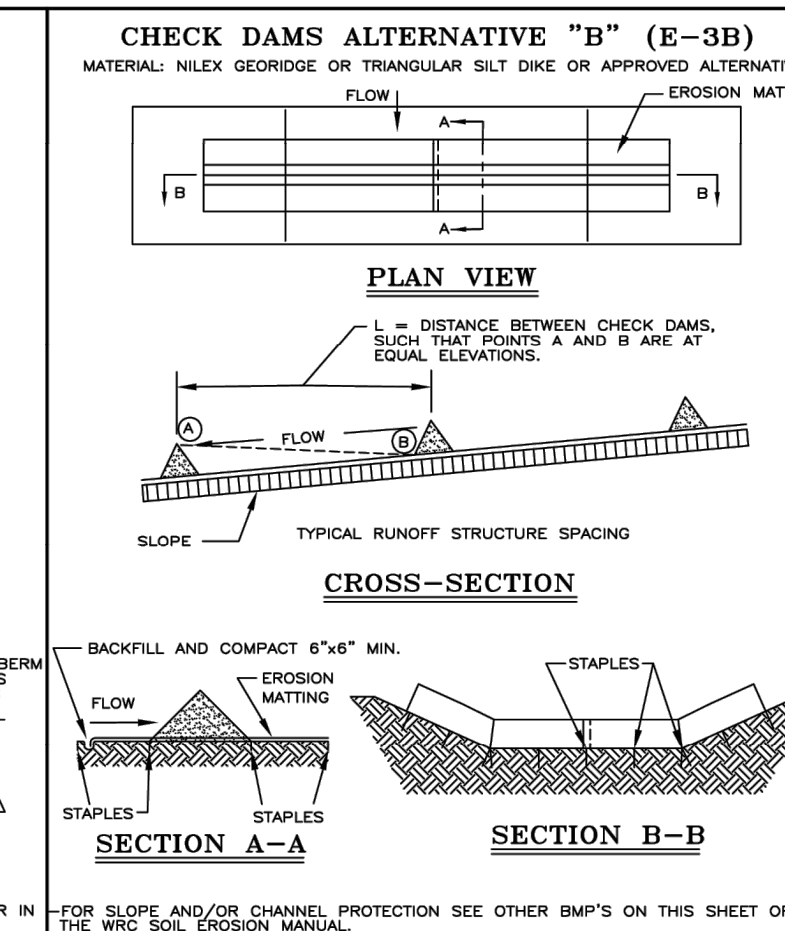
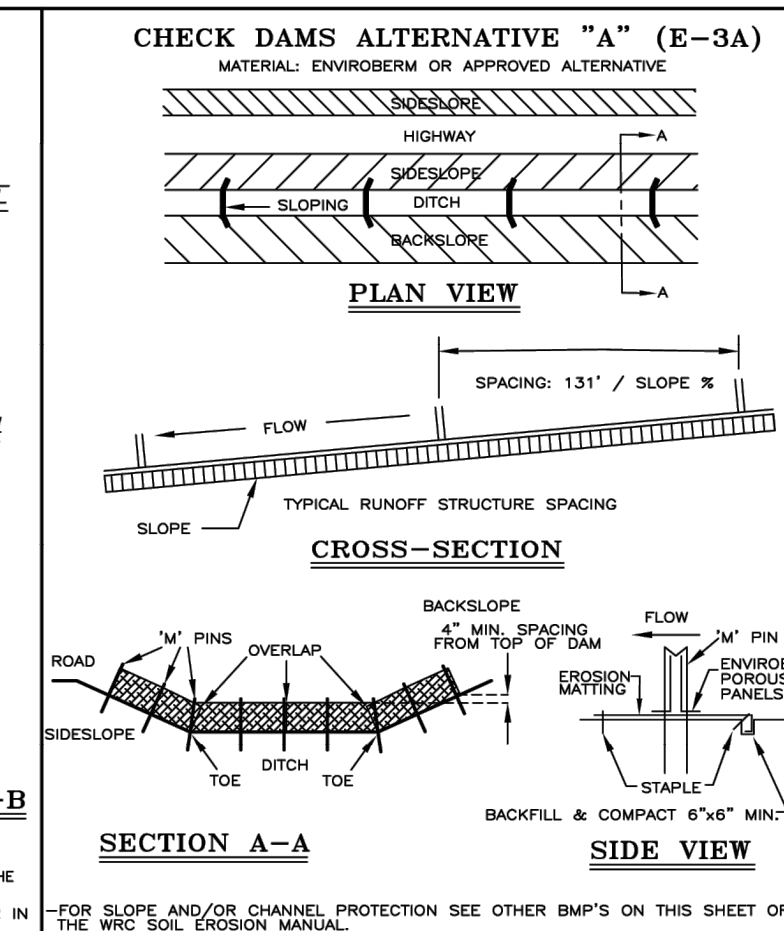
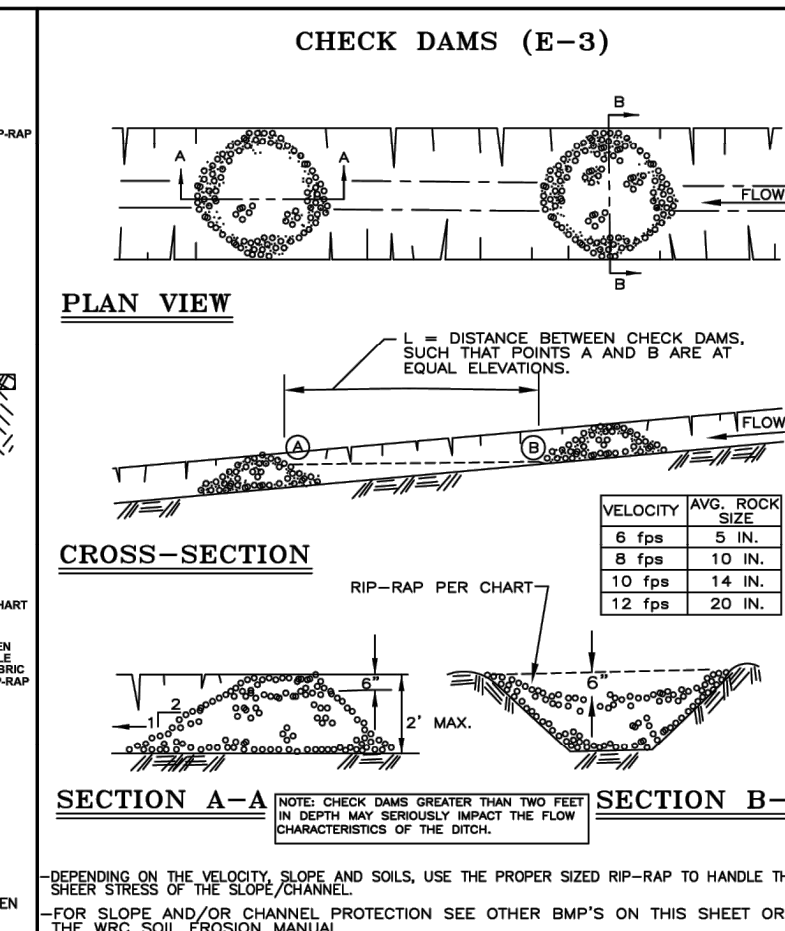
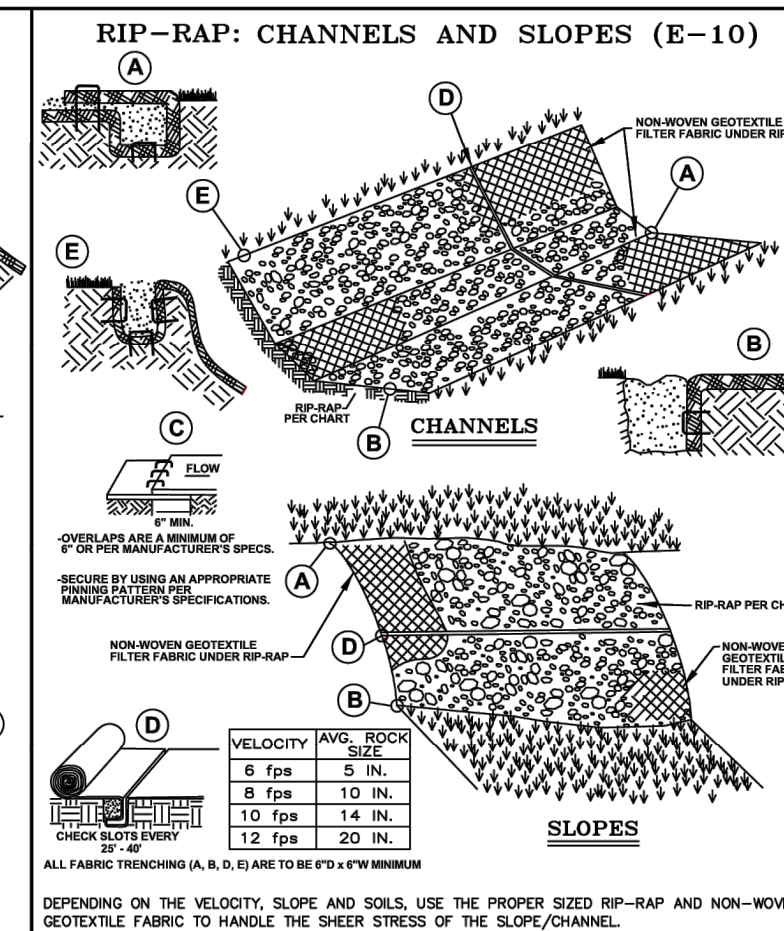
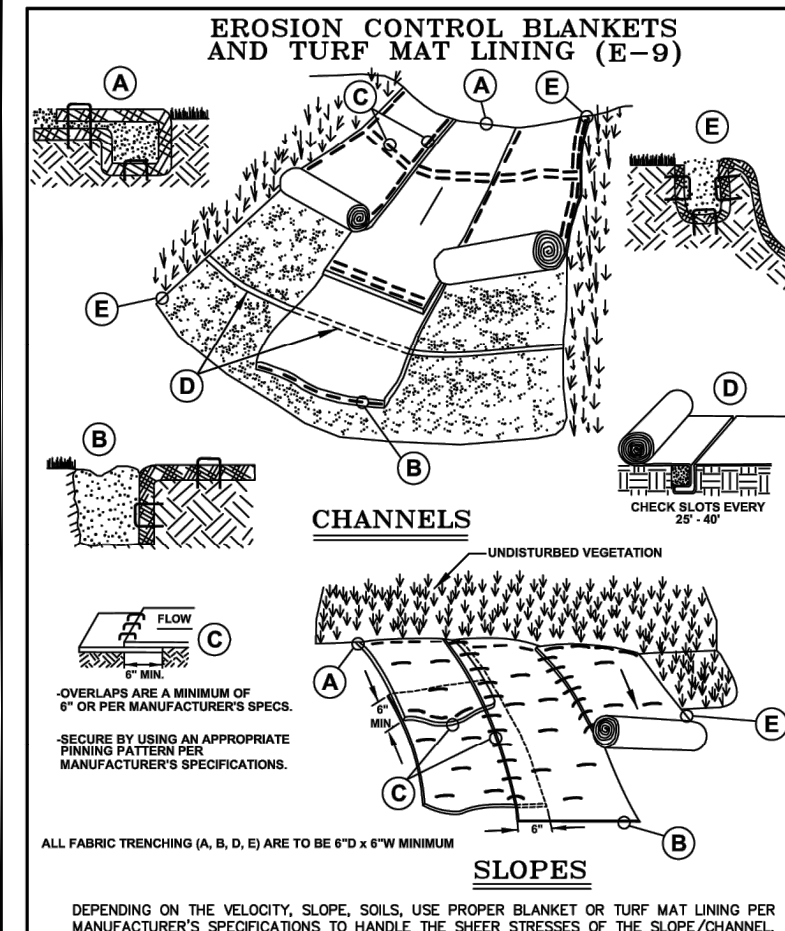
ECT PROJECT No.:	210416
DESIGNED BY:	RM
DRAWN BY:	AK/SD
CHECKED BY:	RM
APPROVED BY:	RM
PRELIMINARY DESIGN	07-28-2021
50% DESIGN DRAWINGS	11-01-2021
PERMIT DRAWINGS	05-13-2022
90% DESIGN DRAWINGS	09-12-2022
FOR CONSTRUCTION	02-15-2023

DETAILS 2

CALL BEFORE YOU DIG
1-800-482-7171

10

EPA/ALABAMA OF ROUGE COMMUNITIES GRANT PROJECT 2021-22 EPAPAL LTU WETLANDS/ROUGE RIVER FOR BIDDING 10 2023.DWG



NOTE:

WHILE PERFORMING WORK INVOLVING GROUNDS MAINTENANCE AND/OR THE CONSTRUCTION/MAINTENANCE OF ANY INFRASTRUCTURE, INCLUDING ROADS, WATER MAINS, SANITARY SEWERS, STORM DRAINS AND STORM WATER BEST MANAGEMENT PRACTICES (BMPs), CONTRACTORS SHALL MINIMIZE POLLUTION FROM STORM WATER RUNOFF THAT CAN AFFECT WATER QUALITY RELATED TO WORK ACTIVITIES. POLLUTANTS THAT COULD IMPAIR WATER QUALITY MAY INCLUDE FUEL, GREASE AND OIL, NUTRIENTS, BACTERIA AND PATHOGENS, LITTER AND DEBRIS, AND SOIL EROSION AND SEDIMENTATION. APPLICABLE BMPs SHALL BE IMPLEMENTED BY THE CONTRACTOR TO THE MAXIMUM EXTENT PRACTICABLE TO PROTECT WATER QUALITY AND WILDLIFE HABITAT.

SOIL EROSION AND SEDIMENTATION CONTROL DETAILS 1

DESIGNER'S BLOCK

No.	Rev.	Date	Description
1	0	11/01/21	PRELIMINARY DESIGN
2	1	11/01/21	50% DESIGN DRAWINGS
3	2	05-13-2022	PERMIT DRAWINGS
4	3	09-12-2022	90% DESIGN DRAWINGS
5	4	02-15-2023	FOR CONSTRUCTION

ORG. DATE: 01/01/21
SCALE: NONE
DESIGNED BY: WRC
DRAWN BY: Mapping

WRC WATER RESOURCES COMMISSIONS

ONE PUBLIC WORKS DRIVE, BLDG 55 WEST WATERWORKS MANSION 48308-1937

SHEET NO.: 1 of 1

ECT

2001 Commonwealth Blvd, Ste. 300
Ann Arbor, MI 48105
Phone: (734) 769-3004
www.ectinc.com

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Great Lakes RESTORATION

GLRI GRANT No.: GL-00E02976

Alliance of Rouge Communities

OURS TO PROTECT
Working together, restoring the river

ROUGE RIVER AOC HABITAT RESTORATION

LTU WETLAND

ECT PROJECT No.: 210416
DESIGNED BY: RM
DRAWN BY: AK/SD
CHECKED BY: RM
APPROVED BY: RM

PRELIMINARY DESIGN 07-28-2021
50% DESIGN DRAWINGS 11-01-2021
PERMIT DRAWINGS 05-13-2022
90% DESIGN DRAWINGS 09-12-2022
FOR CONSTRUCTION 02-15-2023

OC WRC REFERENCE DETAILS 1

CALL BEFORE YOU DIG
1-800-482-7171

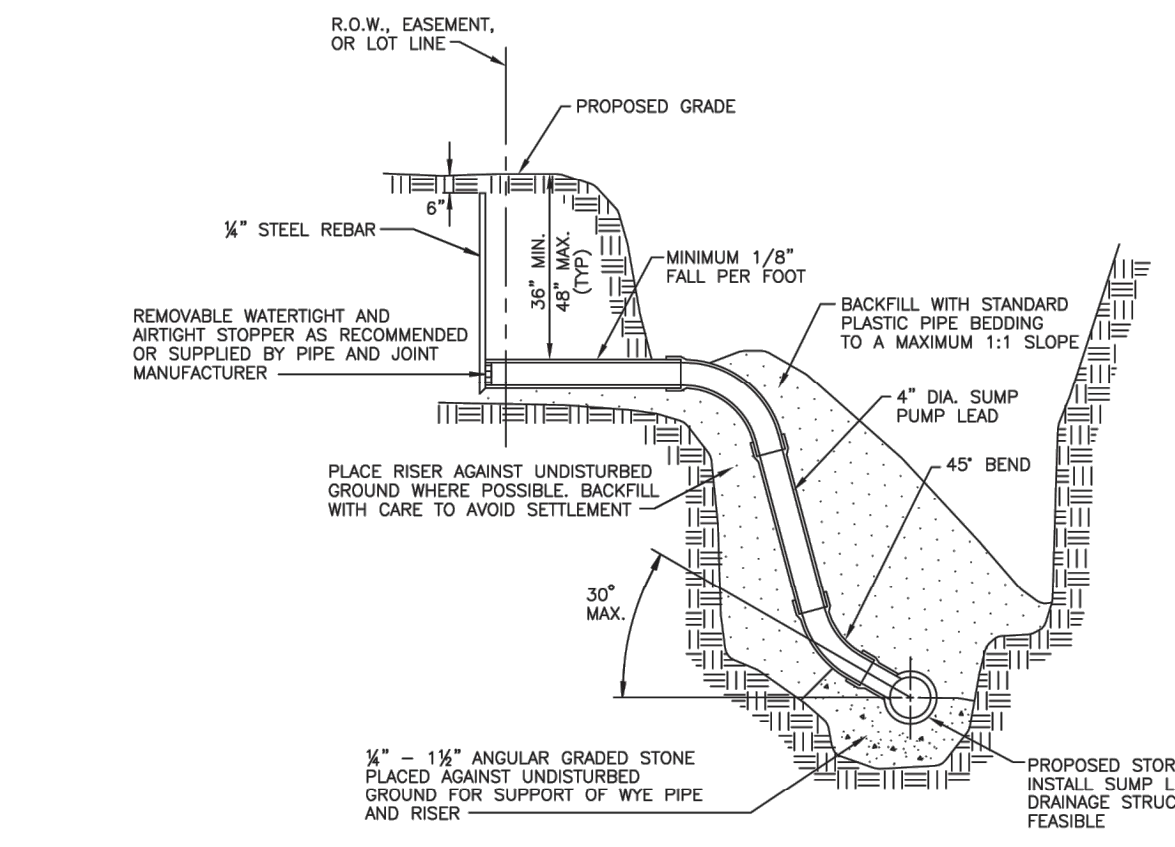
11

ECT PROJECT No.:	210416
DESIGNED BY:	RM
DRAWN BY:	AK/SD
CHECKED BY:	RM
APPROVED BY:	RM
PRELIMINARY DESIGN	07-28-2021
50% DESIGN DRAWINGS	11-01-2021
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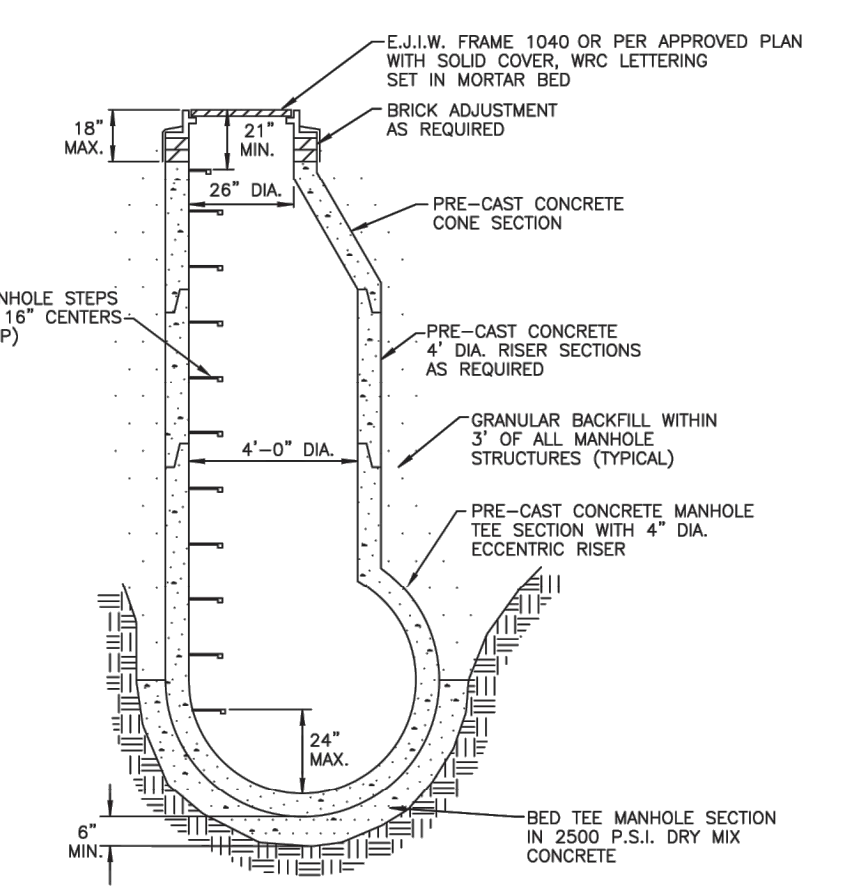
GENERAL NOTES

- Type and class of pipe shall be as specified on plans.
- Class "B" bedding shall be used throughout, unless otherwise specified on the plan.
- All end sections 18" and larger shall be provided with a bar screen unless otherwise approved.
- Standard rip-rap shall be 6"-15" fragmented rock, heavy rip-rap shall be 16"-24" fragmented rock. (No Broken Concrete)
- MANHOLE REQUIREMENTS:
 - All new catch basins, inlets, and manholes are to be manufactured to ASTM C-478 specifications.
 - All new catch basins, inlets, and manholes shall have WRC approved flexible, watertight seals where pipes pass through walls. Manholes shall be of precast sections with modified groove tongue and rubber gasket type joints. Precast manhole cone sections shall be WRC approved modified eccentric cone type.
 - Taps through manhole joints or cone sections are prohibited unless otherwise approved.
 - Manhole steps to be plastic coated steel meeting the requirements in ASTM D 2146, Type II, Grade 49108, MA, Industries P.S.I., Polypropylene, (or approved equal). Steps to be installed during manhole manufacture. Place at 16" centers 45' from centerline of sewer.
 - Cone section with modified groove tongue joints and with stud inserts cast in place. Top to have flush surface.
 - ASTM C-478 riser section with modified groove tongue joints.
 - Res-seal, link-seal, press wedge II, or kor-n-seal boot (with stainless steel korband) flexible rubber manhole joints. (or approved equal).
 - The inside joints of manholes, catch basins, and pipe sizes over 42" and larger in diameter shall be pointed up with mortar upon completion of backfilling.
- CONCRETE PIPE REQUIREMENTS:
 - Concrete pipe to be per ASTM C78 standards.
 - It will be required to TV all pipe 30 days after installation. The contractor shall provide reinforced concrete pipe as specified on the plans.
 - All reinforced concrete pipe shall have modified groove tongue joints with o-ring type rubber gasket, per A.S.T.M. specifications C443.
 - The inside joints of manholes, catch basins, and pipe sizes over 42" and larger in diameter shall be pointed up with mortar upon completion of backfilling.
- SUMP PUMP LEAD REQUIREMENTS:
 - All sump pump leads connected to a County Drain pipe shall be pre-manufactured.
 - Sump pump leads connected to a manhole shall be cored and booted. Refer to Kor-N-Tee Tap Detail.
 - Sump pump mains and leads shall be ABS (truss and solid wall), PVC (truss, solid wall, A2000), ADS N-12 WT with premium joints.
 - Ends of all 4" sump pump leads shall be temporarily capped and their location staked, witnessed and recorded.
 - All sump pump leads to be taken to the property line, easement line or as indicated on the plan.
 - Sump pump mains must have a cleanout with a minimum inside diameter of 24" and be constructed at changes of alignment, ends of sump pump mains or as indicated on the plan.
- RESTORATION REQUIREMENTS:
 - All disturbed area within the County Drain right-of-way shall be restored as follows:
 - Under roads, sidewalks, driveways and parking areas, backfill material shall be placed loosely into trenches in six (6) inch layers with each layer compacted to not less than 95% of maximum dry density as determined by the ASTM D 1557 Compaction Standard (modified proctor compaction test). All other areas shall have each layer compacted to not less than 90% of maximum dry density.
 - Finish subgrade
 - Place 3" thickness clean topsoil acceptable to the engineer to attain finished grade. Topsoil must not be contaminated and may not be a mixture of natural underlying soils, subsoil materials, or other materials. It must consist of natural loam, sandy loam, silty loam or clay loam humus-bearing soil adapted to the sustenance of plant life. Topsoil must be neither excessively acidic nor excessively alkaline. It must be of mineral origin, exclusive of any peat or mulch.
 - Apply seed and fertilizer as follows:

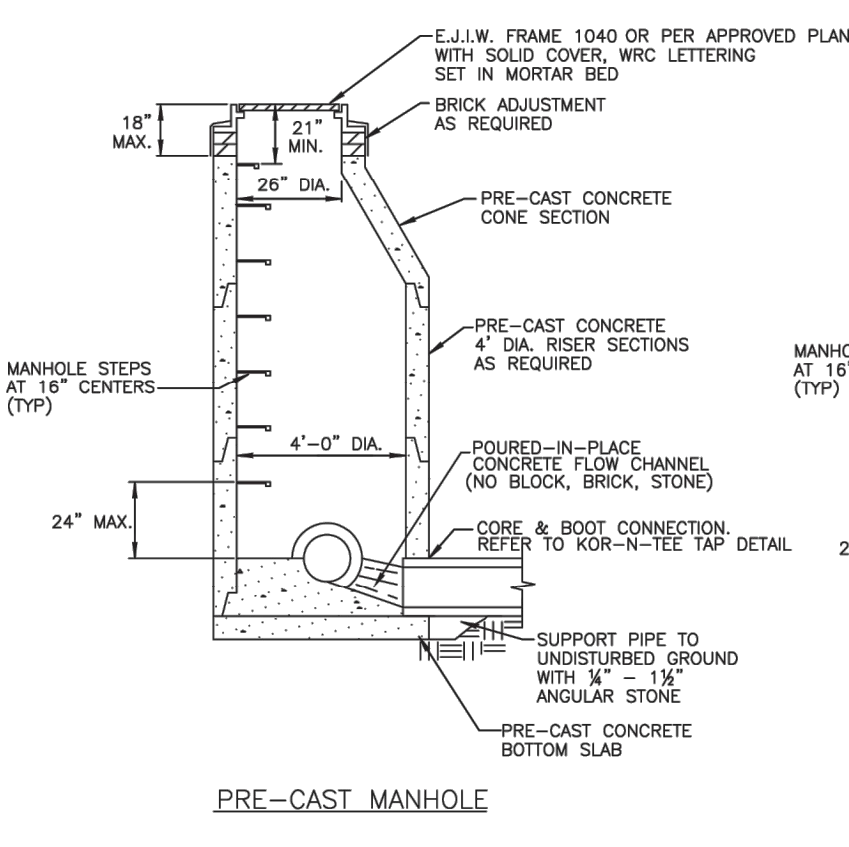
Location	Seeding Requirements	Fertilizer Requirement
Slopes and Ditch Banks, Etc.	M.D.O.T. "Roadside Mix" Turf Seed Mixture TGM Sodding (10% Kentucky Blue, 20% Perennial Rye, 30% Hard Fescue, 40% Creeping Red Fescue) applied at 220 lb/acre	M.D.O.T. Seeding and Sodding Fertilizers, Class A
Other Areas	M.D.O.T. "Roadside Mix" Turf Seed Mixture THM (30% Kentucky Blue, 20% Perennial Rye, 50% Creeping Red Fescue) applied at 220 lb/acre	M.D.O.T. Seeding and Sodding Fertilizers, Class A
 - Sod is required in maintained lawn areas. Refer to WRC General Specifications for additional requirements and information.
 - apply straw or marsh hay mulch in an air-dry condition to all seeded areas over the surface to a uniform thickness of 2 tons/acre.
 - mulch shall be anchored in place with biodegradable netting, not larger than 1 1/2" by 2" nor smaller than 1/2" by 1/2".
 - The contractor shall be responsible to insure the growth of all seeded areas, and shall re-seed as necessary to accomplish this.
 - The Storm Drain Notes and Details Sheet shall be a supplement to WRC Standards and Specifications, which are available on the WRC website (www.ontgov.com/water).



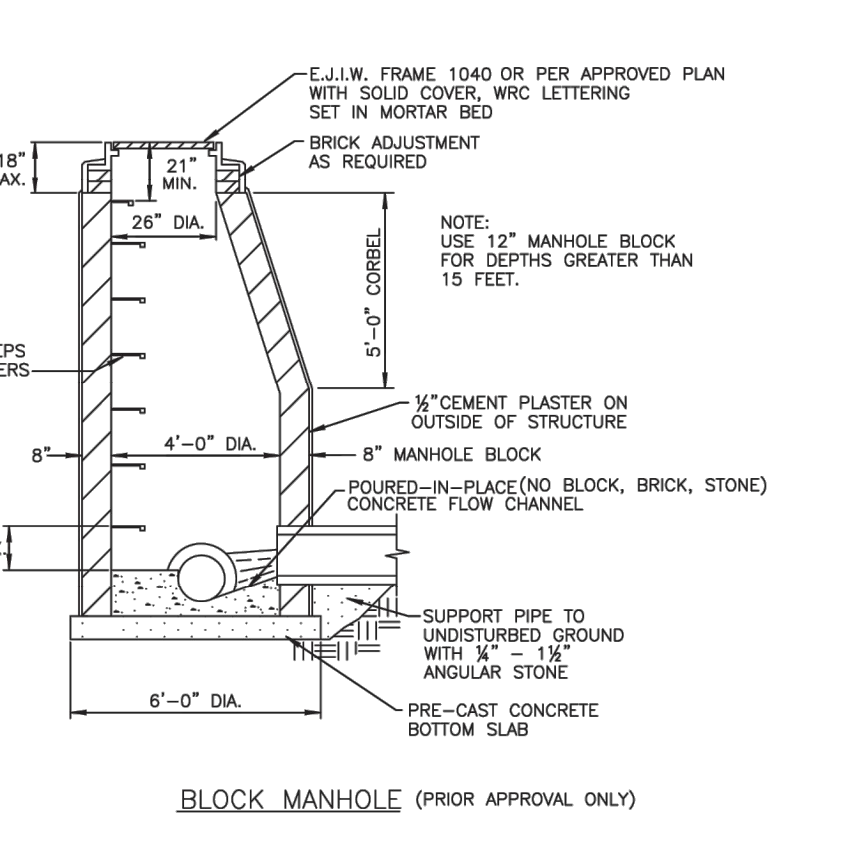
HOUSE LEAD DETAIL FOR 4" DIA. PLASTIC SUMP PUMP LEADS
NO SCALE



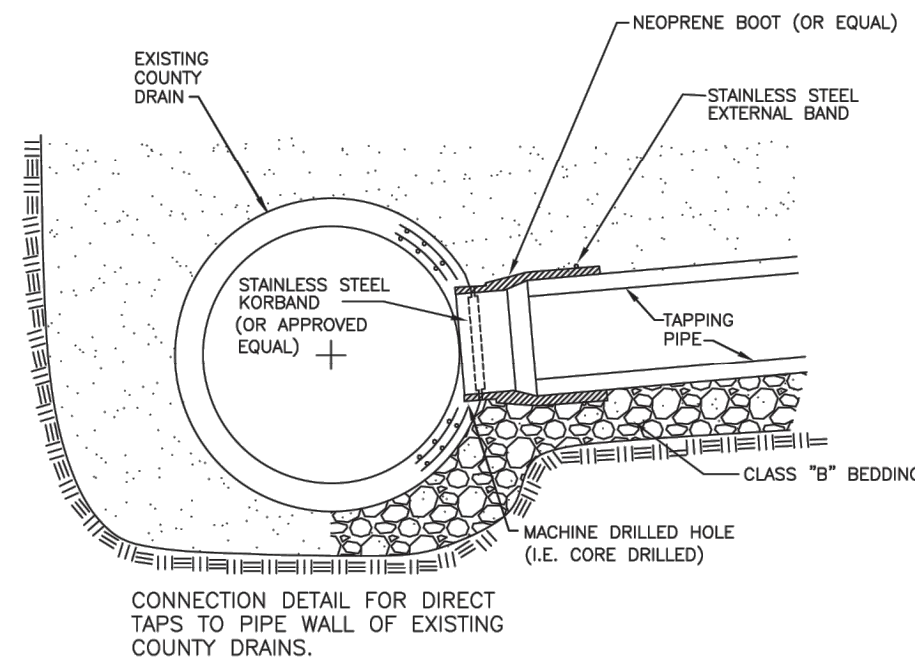
PRE-CAST TEE MANHOLE DETAIL
NO SCALE



STANDARD MANHOLE DETAILS
NO SCALE

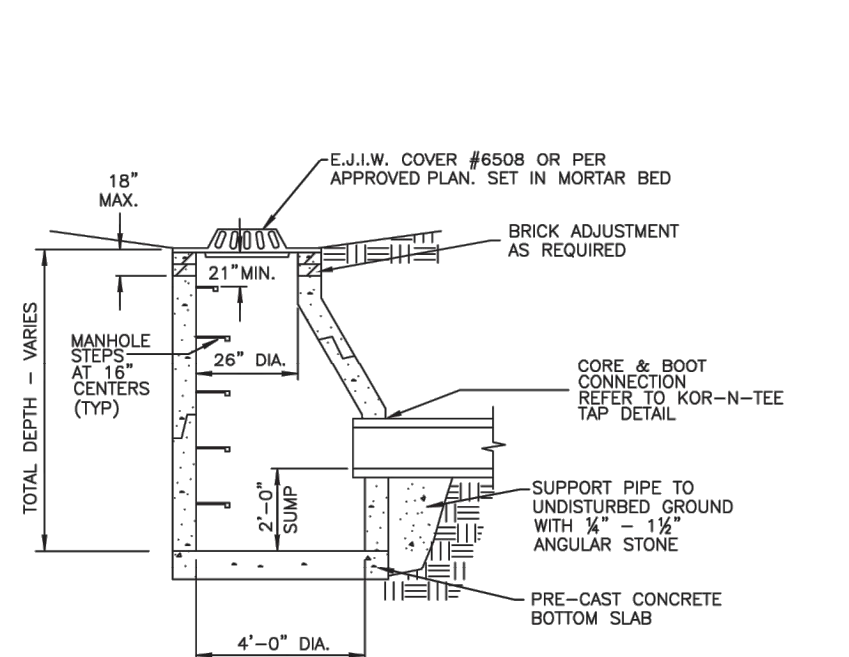


BLOCK MANHOLE (PRIOR APPROVAL ONLY)

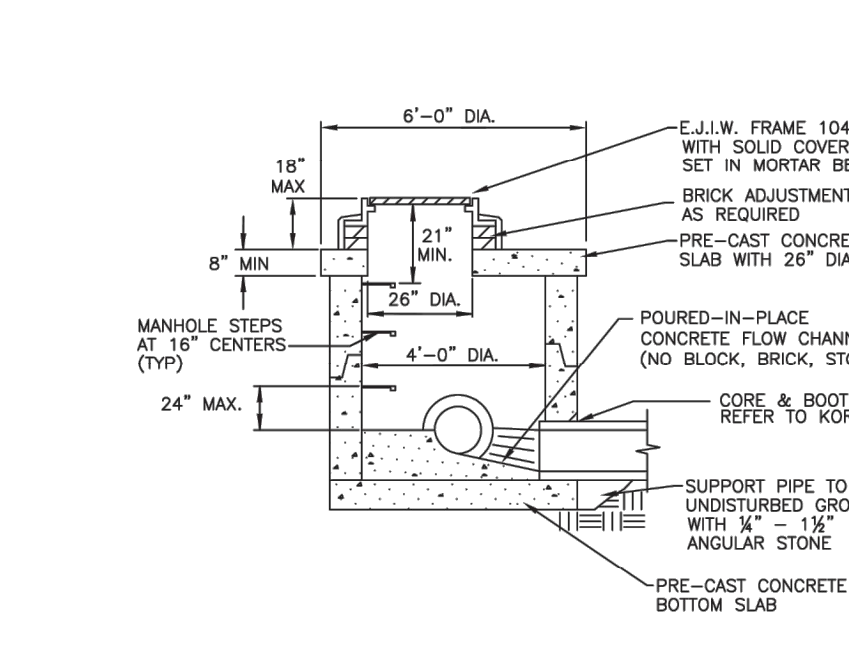


COR-N-TEE TAP (OR APPROVED EQUAL)

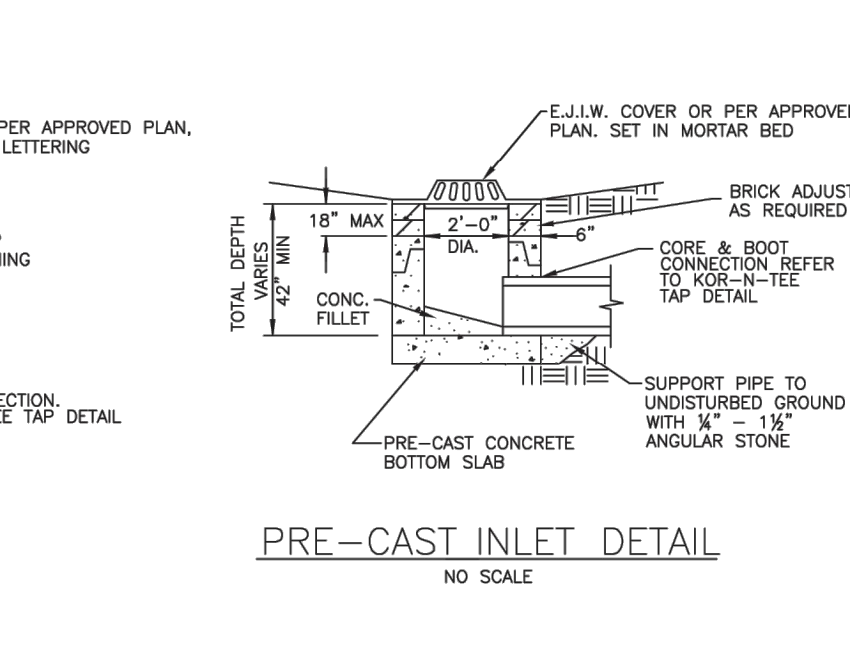
- * For non-concrete to concrete taps.
- * Use link-seal, A-lock or approved equal for concrete to concrete taps.



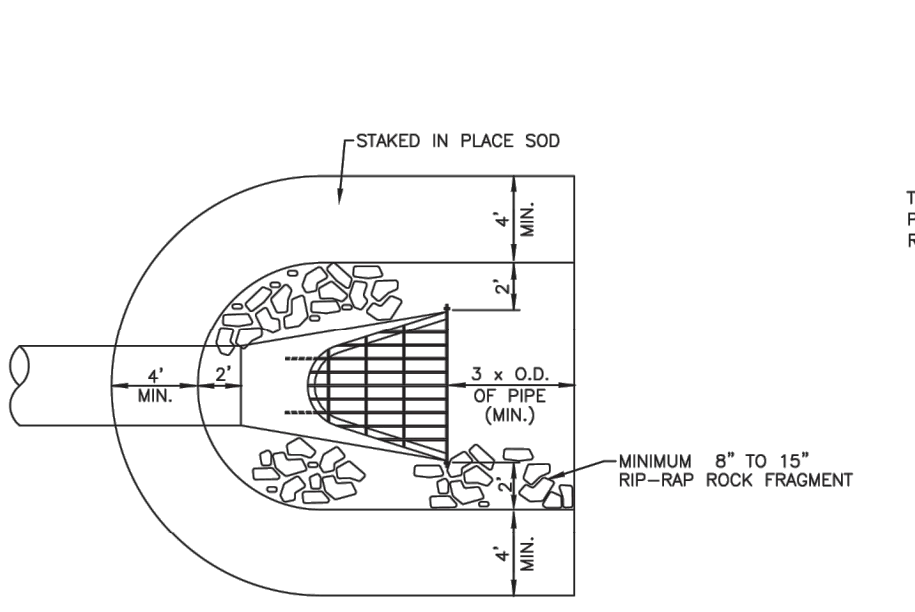
PRE-CAST CATCH BASIN DETAIL
NO SCALE



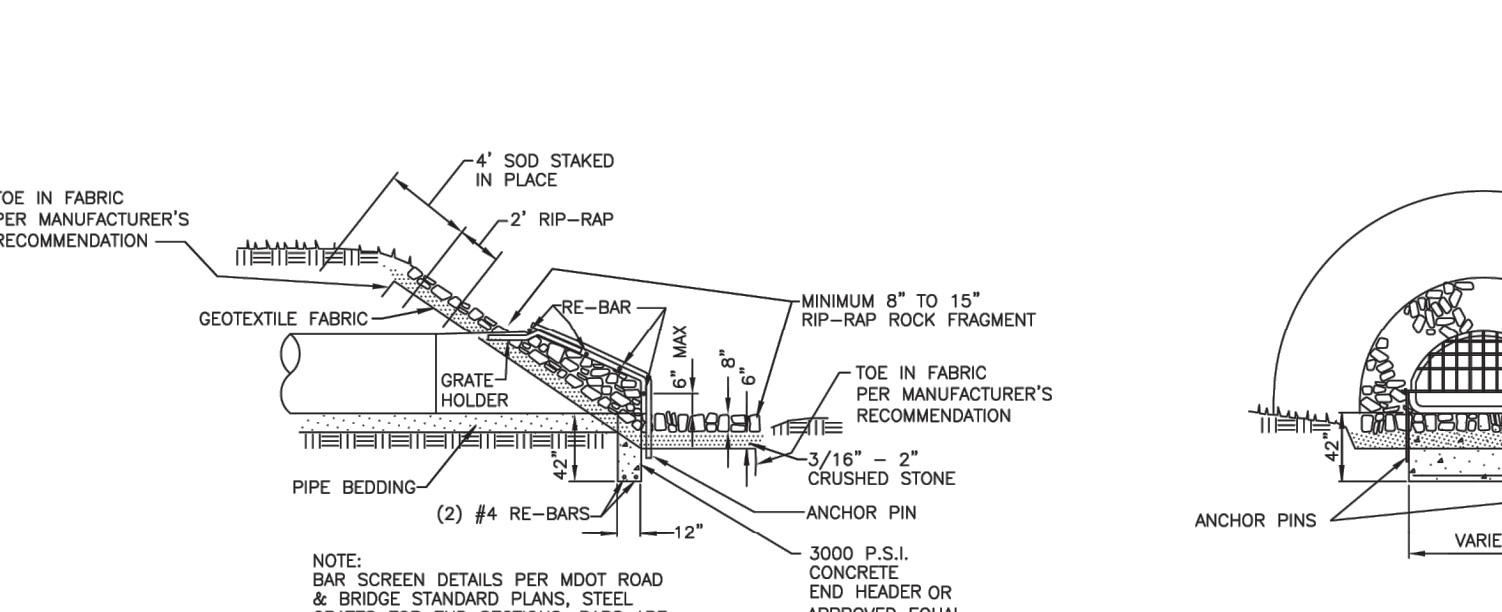
PRE-CAST LOW HEAD MANHOLE DETAIL (PRIOR APPROVAL ONLY)
NO SCALE



PRE-CAST INLET DETAIL
NO SCALE



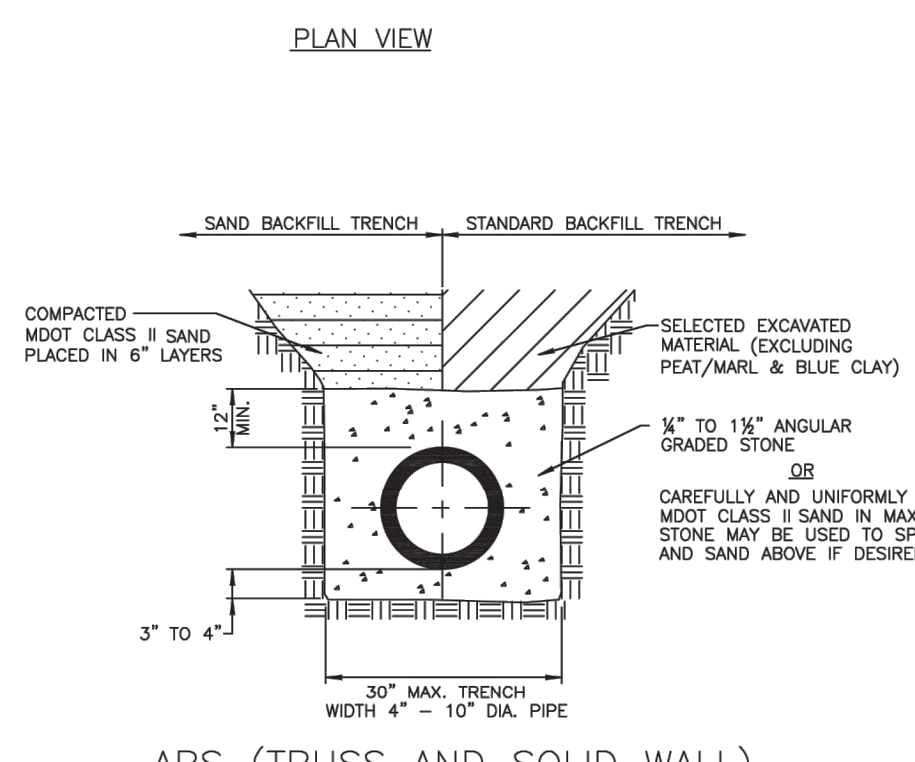
ABS (TRUSS AND SOLID WALL), PVC (TRUSS, SOLID WALL, A2000), ADS N-12 WT PIPE BEDDING DETAIL
NO SCALE



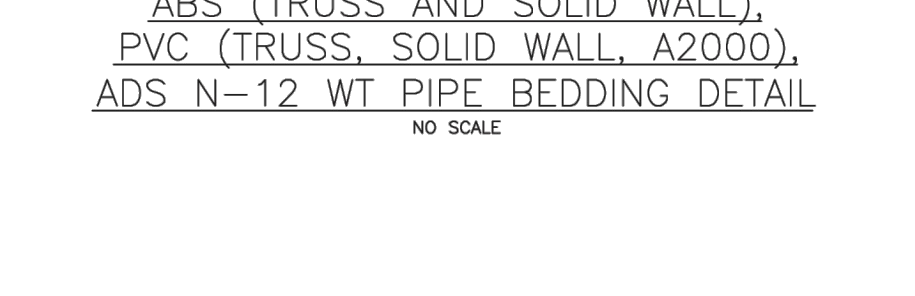
CLASS "B" BEDDING TRENCH DETAIL FOR 27" DIAMETER AND LARGER CONCRETE PIPE
NO SCALE



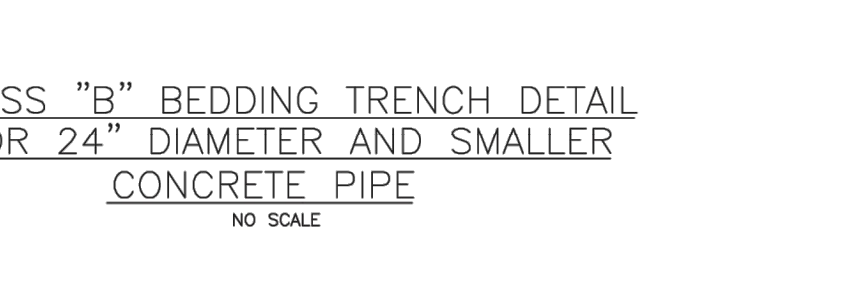
LETTERED MANHOLE COVER FOR WRC
NO SCALE



PRECAST CONCRETE TOP SLAB DETAIL



CLASS "B" BEDDING TRENCH DETAIL FOR 27" DIAMETER AND LARGER CONCRETE PIPE
NO SCALE



CLASS "B" BEDDING TRENCH DETAIL FOR 24" DIAMETER AND SMALLER CONCRETE PIPE
NO SCALE

STORM DRAIN NOTES AND DETAILS

REVISION BLOCK	
Rev. No.	Description
1	PROPOSED DETAIL CHANGES/NEW LOAD
2	APPROVAL PER STANDARDS COMMITTEE
3	REVISED GENERAL DETAIL
4	REVISED GENERAL NOTES
ORG. DATE: 05/05/97	
SCALE:	NONE
DESIGNED BY:	WRC WATER RESOURCES COMMISSIONER
DRAWN BY:	Mapping
ONE PUBLIC WORKS DRIVE, BLDG 66 WEST WATERFORD, MICHIGAN 48398-1907	
SHEET NO.: 1 of 1	

OC WRC REFERENCE DETAILS 2