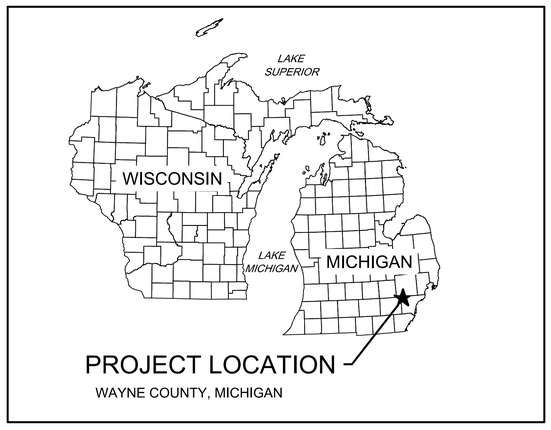
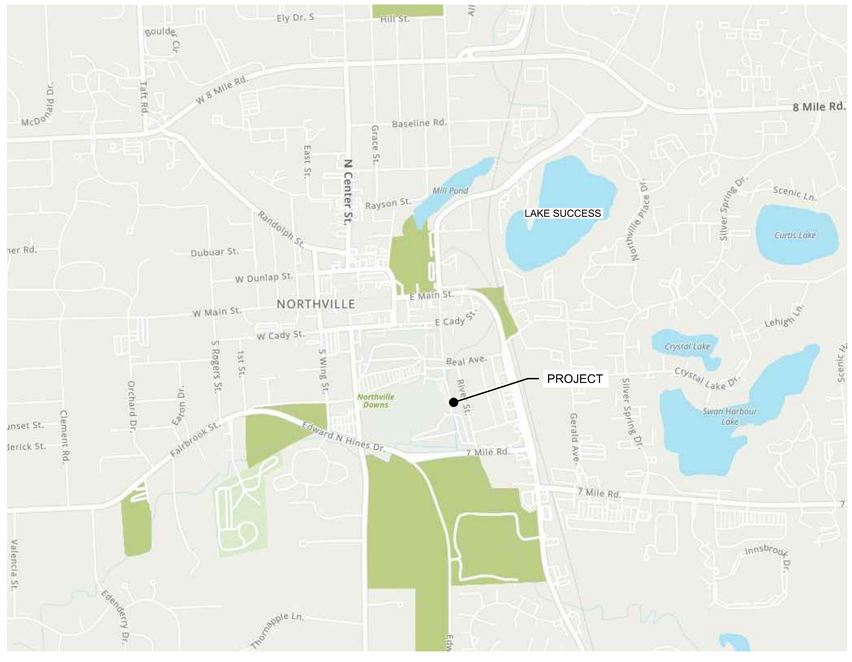
WALLED LAKE BRANCH OF THE ROUGE RIVER DAYLIGHTING

THE DOWNS

NORTHVILLE, MICHIGAN



LOCATION MAP



VICINITY MAP
NOT TO SCALE

SHEET INDEX

SHEET		TITLE
G-01	. . . . .	COVER SHEET, INDEX AND VICINITY MAP
C-01	. . . . .	PLAN AND PROFILE
C-02	. . . . .	STABILIZATION PLAN
C-03	. . . . .	STABILIZATION DETAILS
C-04	. . . . .	STABILIZATION DETAILS
C-05	. . . . .	RESTORATION PLAN
C-06	. . . . .	RESTORATION DETAILS
C-07	. . . . .	RESTORATION SECTIONS

REFERENCING

LIMITS OF SECTION CUT

SECTION IDENTIFIER

SECTION REFERENCES
(SHEET SECTION IS LOCATED ON)

SECTION IDENTIFIER

SECTION: GRAPHICS STANDARDS
1"=1'-0"

SECTION REFERENCES
(SHEET SECTION IS CALLED-OUT ON)

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Date	04/20/2023
Drawn	MJJ
Checked	PJH2
Designed	BARR
Approved	MES2

HUNTER PASTEUR HOMES
NORTHVILLE, LLC
32300 NORTHWESTERN HIGHWAY, SUITE 125
FARMINGTON HILLS, MI 48334

THE DOWNS
NORTHVILLE, MICHIGAN

COVER SHEET AND
SHEET INDEX

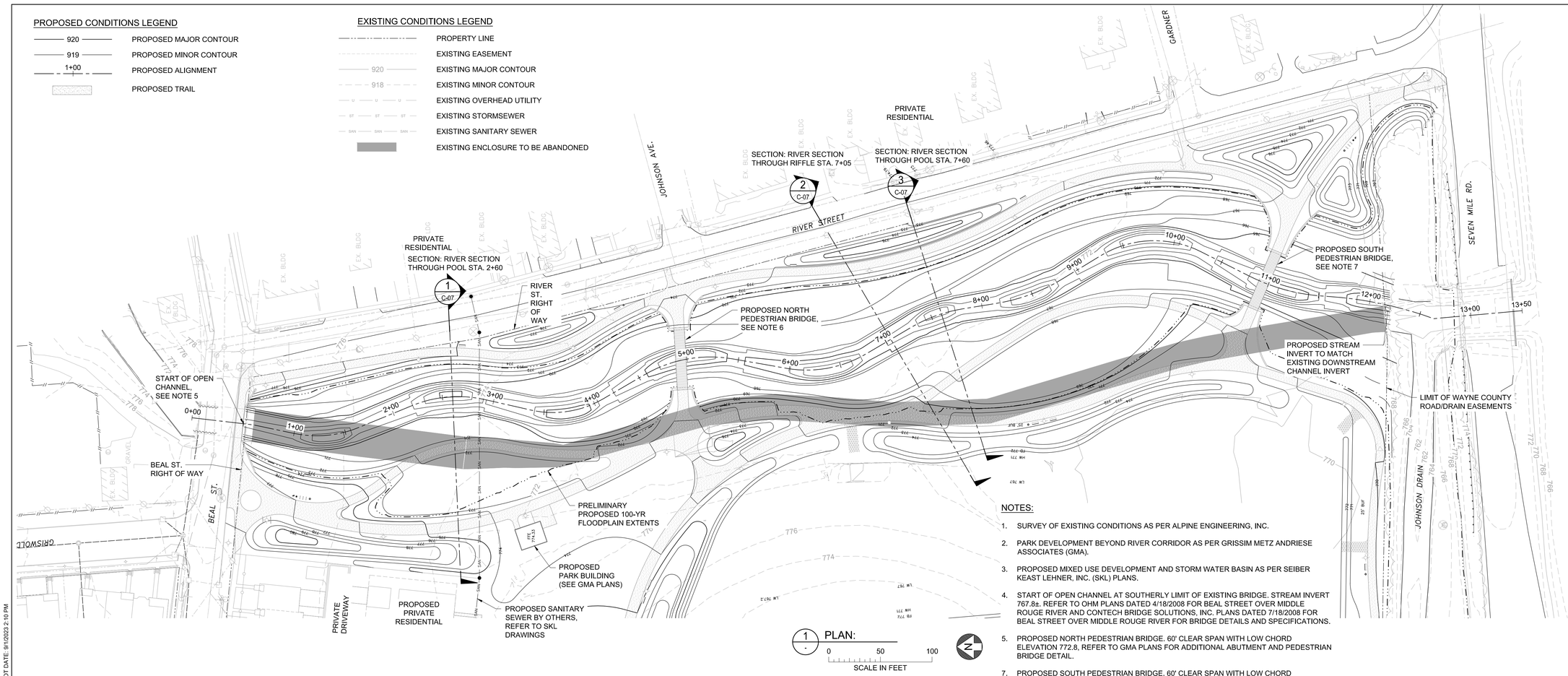
BARR PROJECT No. 22821268.00
CLIENT PROJECT No.
DWG. No. G-01
REV. No. B

PROPOSED CONDITIONS LEGEND

- 920 — PROPOSED MAJOR CONTOUR
- 919 — PROPOSED MINOR CONTOUR
- 1+00 — PROPOSED ALIGNMENT
- PROPOSED TRAIL

EXISTING CONDITIONS LEGEND

- PROPERTY LINE
- EXISTING EASEMENT
- 920 — EXISTING MAJOR CONTOUR
- 918 — EXISTING MINOR CONTOUR
- U — U — U — EXISTING OVERHEAD UTILITY
- ST — ST — ST — EXISTING STORMSEWER
- SAN — SAN — SAN — EXISTING SANITARY SEWER
- EXISTING ENCLOSURE TO BE ABANDONED



1 C-07

2 C-07

3 C-07

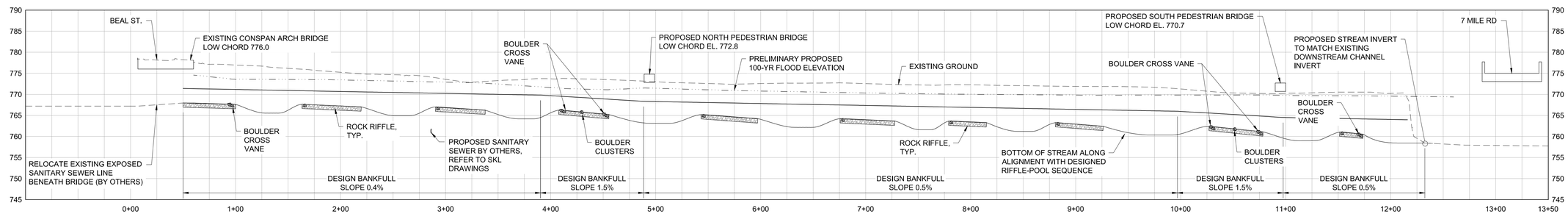
1 PLAN:

0 50 100

SCALE IN FEET

NOTES:

1. SURVEY OF EXISTING CONDITIONS AS PER ALPINE ENGINEERING, INC.
2. PARK DEVELOPMENT BEYOND RIVER CORRIDOR AS PER GRISSIM METZ ANDRIESE ASSOCIATES (GMA).
3. PROPOSED MIXED USE DEVELOPMENT AND STORM WATER BASIN AS PER SEIBER KEAST LEHNER, INC. (SKL) PLANS.
4. START OF OPEN CHANNEL AT SOUTHERLY LIMIT OF EXISTING BRIDGE. STREAM INVERT 767.8±. REFER TO OHM PLANS DATED 4/18/2008 FOR BEAL STREET OVER MIDDLE ROUGE RIVER AND CONTECH BRIDGE SOLUTIONS, INC. PLANS DATED 7/18/2008 FOR BEAL STREET OVER MIDDLE ROUGE RIVER FOR BRIDGE DETAILS AND SPECIFICATIONS.
5. PROPOSED NORTH PEDESTRIAN BRIDGE. 60' CLEAR SPAN WITH LOW CHORD ELEVATION 772.8, REFER TO GMA PLANS FOR ADDITIONAL ABUTMENT AND PEDESTRIAN BRIDGE DETAIL.
7. PROPOSED SOUTH PEDESTRIAN BRIDGE. 60' CLEAR SPAN WITH LOW CHORD ELEVATION 770.7, REFER TO GMA PLANS FOR ADDITIONAL ABUTMENT AND PEDESTRIAN BRIDGE DETAIL.



2 PROFILE:

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THE DOWNS
NORTHVILLE, MICHIGAN

STREAM
PLAN AND PROFILE

BARR PROJECT No.	22821268.00
CLIENT PROJECT No.	
DWG. No.	C-01
REV. No.	B

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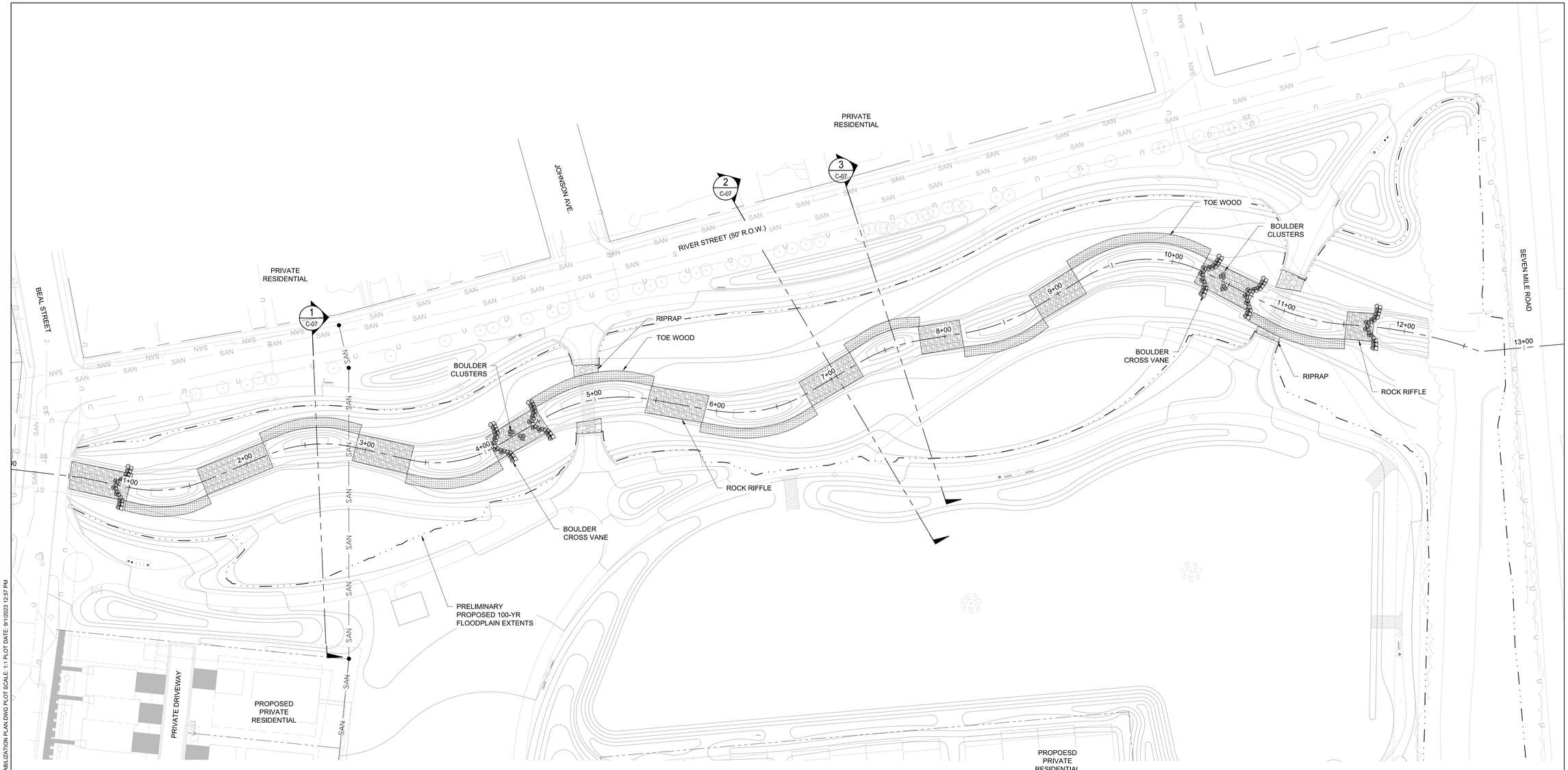

1 STABILIZATION PLAN

0 40 80

SCALE IN FEET

N

PROPOSED CONDITIONS LEGEND

- 920 — PROPOSED MAJOR CONTOUR
- 919 — PROPOSED MINOR CONTOUR
- 1+00 — PROPOSED ALIGNMENT
- TOE WOOD
- BOULDER CROSS VANE
- ROCK RIFFLE
- RIPRAP
- BOULDER CLUSTERS

* SEE SHEET C-03 & C-04 FOR STABILIZATION STRUCTURE DETAILS

EXISTING CONDITIONS LEGEND

- LIMITS OF CONSTRUCTION
- PROPERTY LINE
- EXISTING EASEMENT
- 920 — EXISTING MAJOR CONTOUR
- 918 — EXISTING MINOR CONTOUR
- U — EXISTING OVERHEAD UTILITY
- ST — EXISTING STORMSEWER
- SAN — EXISTING SANITARY SEWER

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THE DOWNS
NORTHVILLE, MICHIGAN

STREAM
STABILIZATION PLAN

BARR PROJECT No.	22921268.00
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DWG. No.	C-02
REV. No.	B

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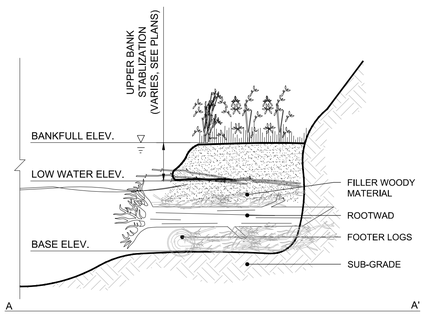
1. INSTALLATION SUMMARY

DESIGN CONSULTANT MUST BE PRESENT FOR INSTALLATION OF TOEWOOD.

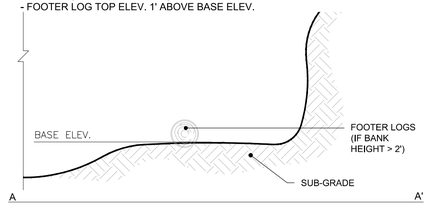
THE SCHEMATICS ON THIS PAGE ARE NOT TO SCALE.

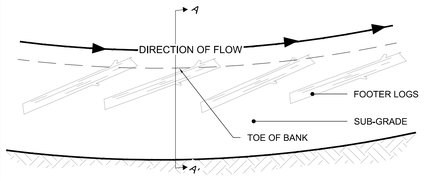


2. SUBGRADE AND FOOTER LOGS

SPECIFICATION:
- 8" TO 1' DIAMETER
- LIMBS REMOVED
- APPROX 12' LENGTH

PLACEMENT:
- EXCAVATE BENCH OR TRENCHES TO BASE ELEVATION - CONTRACTOR SHALL MAKE EFFORT TO SEPARATE GRANULAR AND FINE FILL NATIVE MATERIAL FOR USE IN STEPS 4 AND 6.
- FOOTER LOGS NOT USED FOR POOL DEPTH < 2.5'
- PLACE ONE FOOTER LOG (IF USED) PER ROOT WAD
- PLACE FOOTER LOGS (IF USED) 30 DEGREES FROM PARALLEL TO STREAM FLOW WITH UPSTREAM END EMBEDDED IN STREAM BANK AT LEAST 50% OF LOG LENGTH (PLAN VIEW BELOW)
- FOOTER LOG TOP ELEV. 1' ABOVE BASE ELEV.



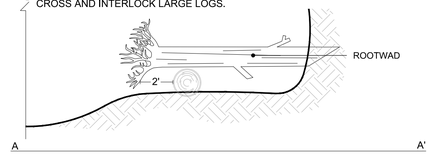


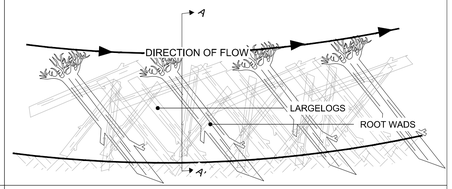
3. ROOT WADS & LARGE LOGS

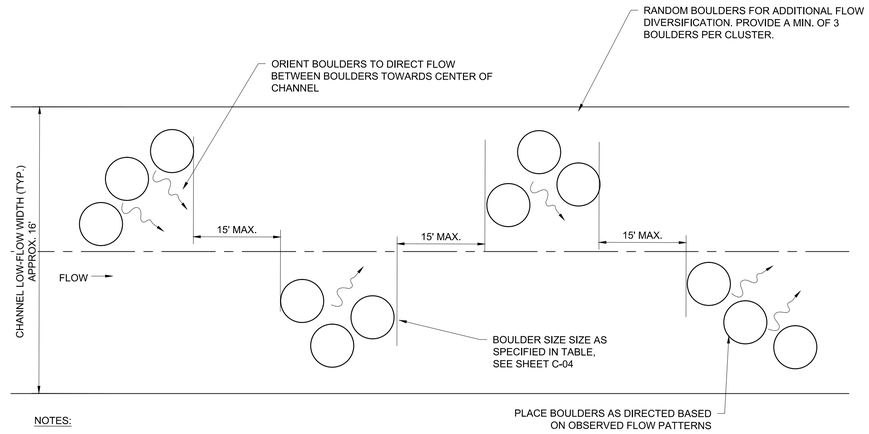
ROOT WAD SPECIFICATION:
- 8" MIN DIAMETER, MAX DIAMETER EQUAL TO BANK HEIGHT
- LENGTH INDICATED IN DESIGN CROSS SECTION OR 8' MIN.
- LIMBS REMOVED
- ROOT WADS LEFT INTACT, 4' MIN ROOT FAN DIAMETER
- ENDS SHARPENED TO A POINT

LARGE LOG SPECIFICATION:
- 8" MIN DIAMETER, MAX DIAMETER EQUAL TO BANK HEIGHT
- LENGTH SIMILAR TO ROOT WAD LOGS

PLACEMENT:
- PLACE ROOT WADS HORIZONTALLY ON TOP OF FOOTER LOGS (IF USED), OVERHANG ROOT WAD LOGS 2'
- ANGLE ROOTWADS UPSTREAM
- DRIVE SHARPENED TRUNKS MIN. 3' INTO BANK OR DIG IN.
- SPACE ROOTWADS 8' O.C. (TYP)
- PLACE 5 TO 7 LARGE LOGS BETWEEN ROOT WADS, CROSS AND INTERLOCK LARGE LOGS.







NOTES:

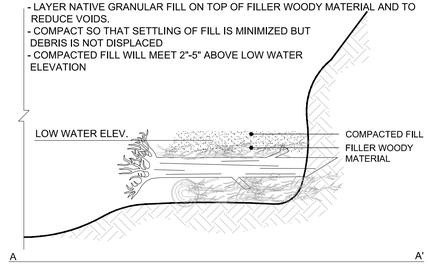
1. NUMBER OF BOULDER CLUSTERS AS NOTED ON STREAM STABILIZATION PLAN

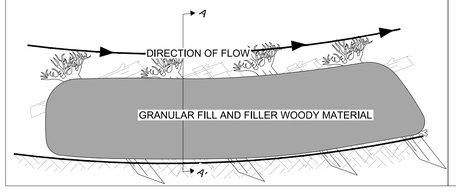
2 / - DETAIL: BOULDER CLUSTERS
NOT TO SCALE

4. FILLER WOODY MATERIAL & GRANULAR FILL

SPECIFICATION:
- FILLER WOODY MATERIAL (COMPOSED OF SMALL LIMBS AND BRANCHES, APPROX. 4" MAX DIAMETER AND SMALLER)
- DO NOT USE ROTTEN WOODY MATERIAL
- NATIVE GRANULAR FILL

PLACEMENT:
- FILL BETWEEN FOOTER LOGS AND ROOTWADS WITH FILLER WOODY MATERIAL
- STACK FILLER WOODY MATERIAL TO LOW WATER ELEVATION
- LAYER NATIVE GRANULAR FILL ON TOP OF FILLER WOODY MATERIAL AND TO REDUCE VOIDS.
- COMPACT SO THAT SETTLING OF FILL IS MINIMIZED BUT DEBRIS IS NOT DISPLACED
- COMPACTED FILL WILL MEET 2"-5" ABOVE LOW WATER ELEVATION

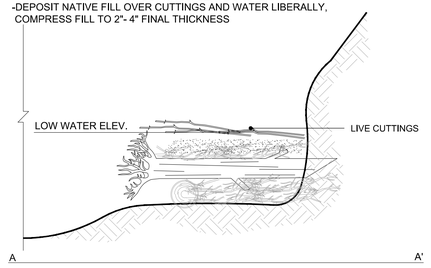


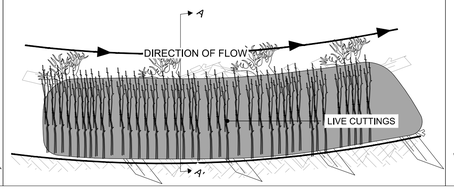


5. LIVE CUTTINGS

SPECIFICATION:
- 1/2"-1.5" DIAMETER
- 4' MIN LENGTH
- DORMANT LIVE CUTTING

PLACEMENT:
- LAY CUTTINGS WITH A DENSITY OF 2-3 CUTTINGS PER LINEAL FOOT
- TOPS OF CUTTING POINT TOWARD CHANNEL, BUDS RIGHT SIDE UP
- TRIM EXPOSED ENDS OF CUTTINGS, LEAVE 6-12" EXPOSED
- DEPOSIT NATIVE FILL OVER CUTTINGS AND WATER LIBERALLY, COMPRESS FILL TO 2"- 4" FINAL THICKNESS

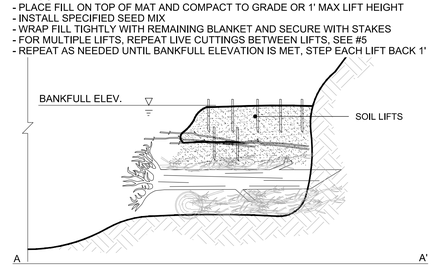


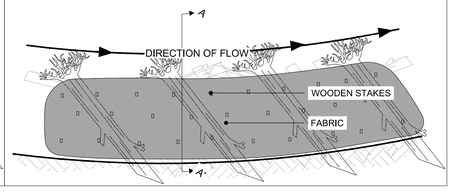


6. SOIL LIFTS

SPECIFICATION:
- COMMON FILL (LOWER LIFTS) AND COMMON TOPSOIL (UPPER 6")
- USE 1' TALL FORMS
- MIN 6.5' WIDE ROLANKA BIOD-MAT 90, GEOCOIR 900, OR APPROVED SUBSTITUTE LINED WITH BIONET C125BN OR APPROVED SUBSTITUTE.
- 18" WOODEN STAKES (2X4 CUT AT ANGLE), PLACED AT 3' SPACING

PLACEMENT:
- PLACE FORM OVER LIVE CUTTINGS
- LAY MIN 2.5' OF FABRIC (COCONUT BLANKET AND LINER) ALONG BENCH, STAKE DOWN
- PLACE FILL ON TOP OF MAT AND COMPACT TO GRADE OR 1' MAX LIFT HEIGHT
- INSTALL SPECIFIED SEED MIX
- WRAP FILL TIGHTLY WITH REMAINING BLANKET AND SECURE WITH STAKES
- FOR MULTIPLE LIFTS, REPEAT LIVE CUTTINGS BETWEEN LIFTS, SEE #5
- REPEAT AS NEEDED UNTIL BANKFULL ELEVATION IS MET, STEP EACH LIFT BACK 1'





1 / - DETAIL: TOE WOOD
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THE DOWNS
NORTHVILLE, MICHIGAN

STREAM
STABILIZATION DETAILS

BARR PROJECT No.	22921268.00
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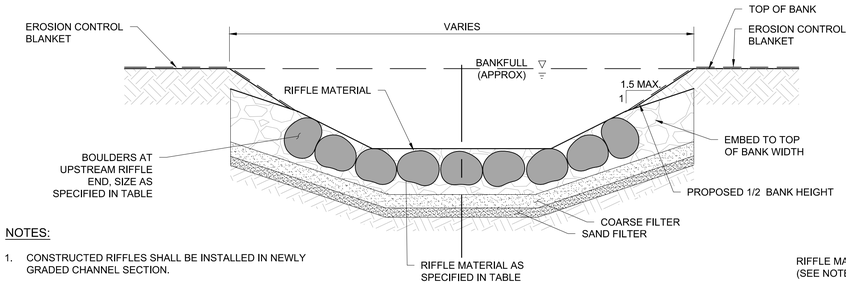
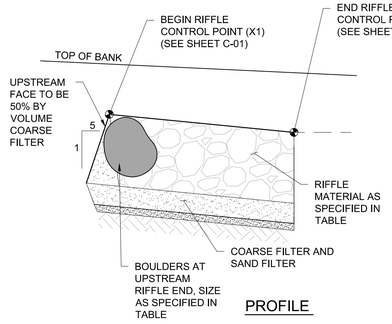
DWG. No.	C-03
REV. No.	B



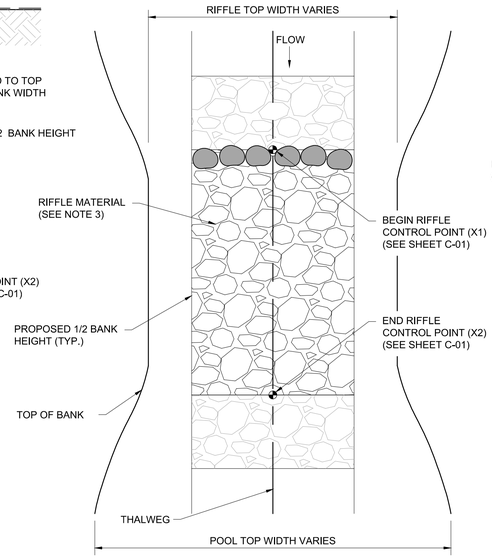
RIFFLE CROSS SECTION

NOTES:

1. CONSTRUCTED RIFFLES SHALL BE INSTALLED IN NEWLY GRADED CHANNEL SECTION.
2. ELEVATION CONTROL POINTS SHALL BE DESIGNATED AT THE BEGINNING AND END OF RIFFLE POINTS TO ESTABLISH PART OF THE PROFILE OF THE CHANNEL. SURVEY OF CONTROL POINTS SHALL BE REQUIRED TO ESTABLISH ACCURATE RIFFLE INSTALLATION.
3. RIFFLE MATERIAL SHALL BE OF A TYPE, SIZE, AND GRADATION AS SPECIFIED (SEE TABLE).
4. BOULDERS AT UPSTREAM RIFFLE END ARE INCIDENTAL TO ROCK RIFFLE CONSTRUCTION.
5. THE FACE OF THE RIFFLE UPSTREAM OF THE BEGIN RIFFLE CONTROL POINT SHALL BE 50% BY VOLUME COARSE FILTER AGGREGATE TO REDUCE VOID SPACES. FILTER AGGREGATE SHALL BE INCIDENTAL TO THE RIFFLE MATERIAL.
6. THE PLACEMENT OF BACKFILL AND/OR RIFFLE MATERIAL SHALL BE DONE IN A MANNER TO CREATE A SMOOTH PROFILE, WITH NO ABRUPT 'JUMP' (TRANSITION) BETWEEN THE UPSTREAM POOL-GLIDE AND THE RIFFLE, AND LIKEWISE NO ABRUPT 'DROP' (TRANSITION) BETWEEN THE RIFFLE AND THE DOWNSTREAM RUN-POOL. ALSO A THALWEG SHALL BE FASHIONED WITHIN THE RIFFLE WIDTH SO THAT THE FINISHED CROSS SECTION OF THE RIFFLE MATERIAL MATCHES THE SHAPE AND DIMENSIONS SHOWN ON THE RIFFLE TYPICAL SECTION.
5. SURFACE LAYER OF COBBLESTONE AREA TO INCLUDE ADDITIONAL 0.17 CY COARSE FILTER PER SY COBBLESTONE AREA TO FILL VOIDS IN SURFACE COBBLESTONE.



PROFILE



2 DETAIL: ROCK RIFFLE
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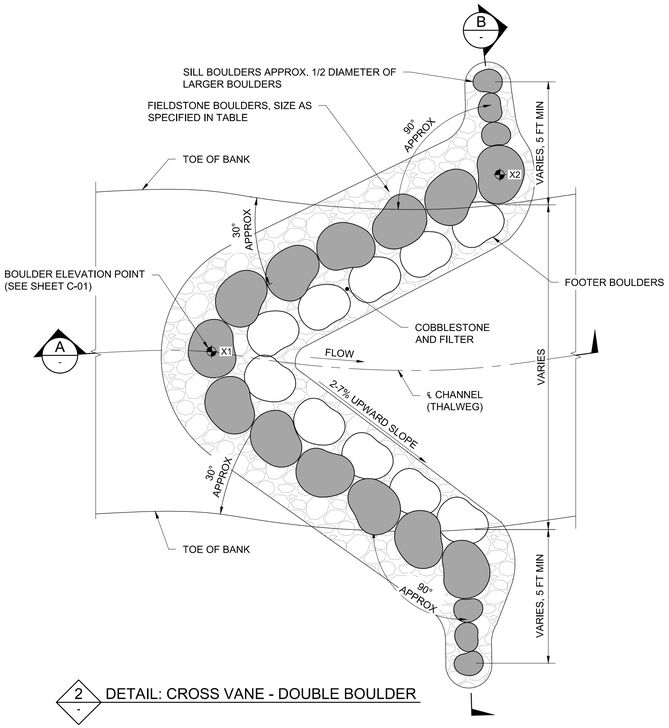
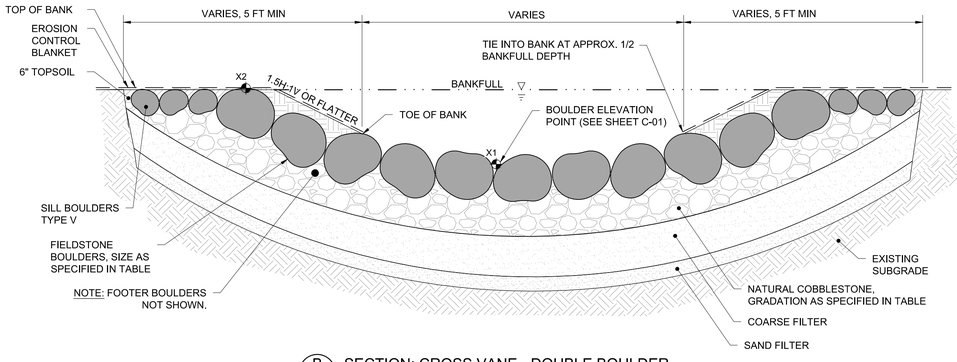


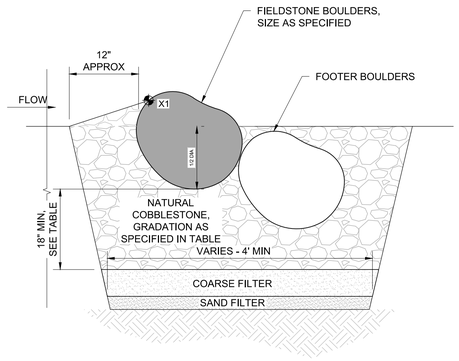
2 DETAIL: CROSS VANE - DOUBLE BOULDER



B SECTION: CROSS VANE - DOUBLE BOULDER

NOTES:

1. CROSS VANE LOCATIONS AND ELEVATIONS ARE APPROXIMATE AND MAY BE MODIFIED IN THE FIELD BY THE DESIGN CONSULTANT.
2. FINAL BOULDER PLACEMENT TO BE APPROVED BY THE DESIGN CONSULTANT IN THE FIELD. CONTRACTOR MAY BE REQUIRED TO ADJUST BOULDER ELEVATIONS AND ROTATION.
3. THERE SHALL BE NO SIGNIFICANT GAPS BETWEEN BOULDERS. COBBLESTONE BEDDING SHALL BE PLACED ON THE UPSTREAM SIDE OF THE BOULDERS TO PLUG SMALL GAPS (MAY REQUIRE HAND PLACEMENT).
4. BOULDERS OF AN UNSUITABLE SHAPE MAY BE RE-LOCATED OR REJECTED.
5. BOULDER CUTOFF SILL IS INCIDENTAL TO BOULDER VANE CONSTRUCTION AT THE LENGTH SHOWN IN THE DRAWINGS (5 FT MIN.)
6. SURFACE LAYER OF COBBLESTONE AREAS TO INCLUDE ADDITIONAL 0.17 CY COARSE FILTER PER SY COBBLESTONE AREA TO FILL VOIDS IN SURFACE COBBLESTONE.



A SECTION: ROCK VANE - DOUBLE BOULDER

AGGREGATE SIZING TABLE	
USE	SIZE
RIFFLE	18" MAX, 9" D50
RIFFLE BOULDER	36"-42"
CROSS VANE BOULDER	36"-42"
BOULDER CLUSTER	36"-42"

PRELIMINARY DRAFT
NOT FOR CONSTRUCTION

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION
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BARR
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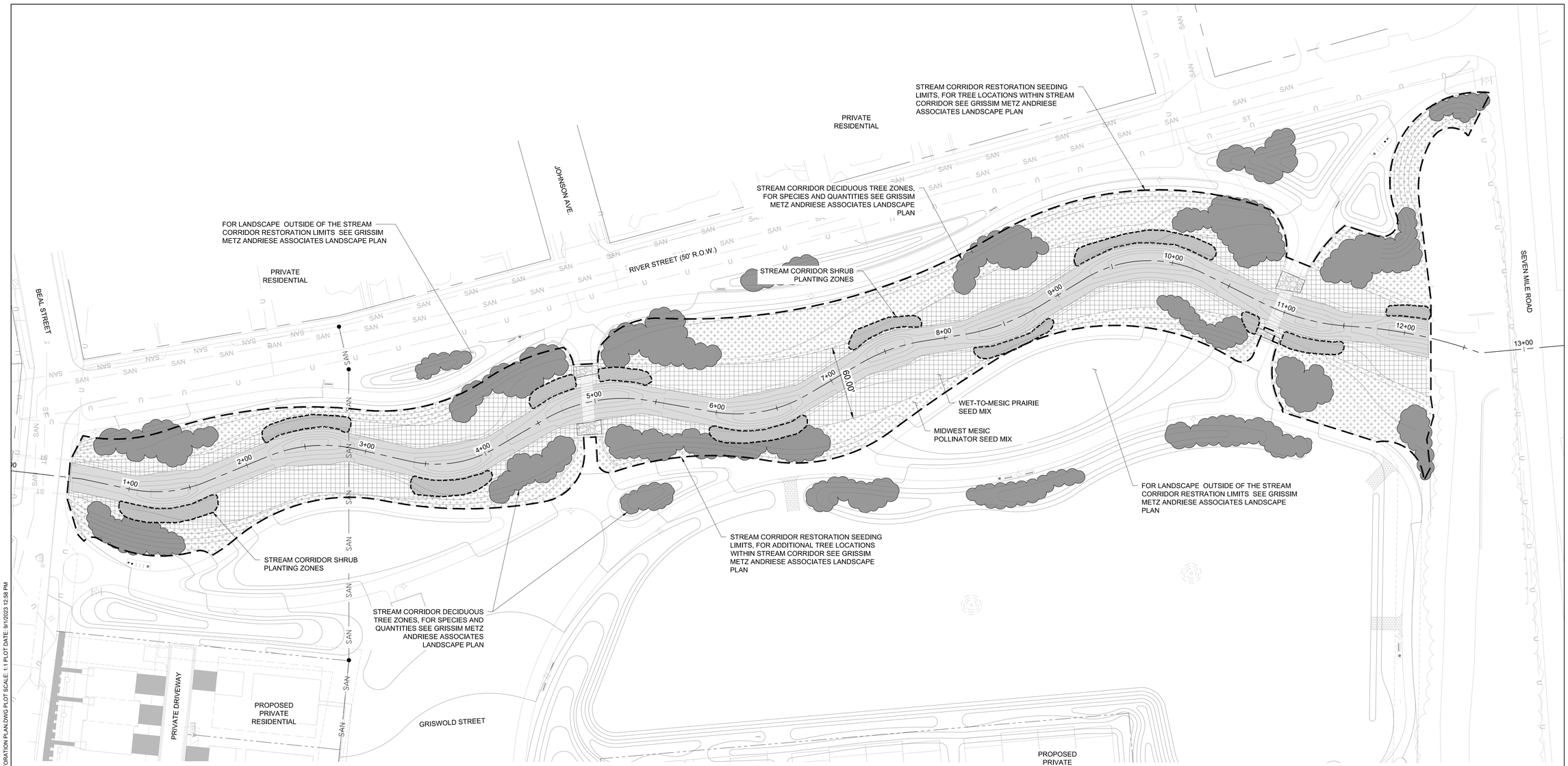
Scale	AS SHOWN
Date	04/25/2023
Drawn	AMP3
Checked	PJH2
Designed	PJH2
Approved	MES2

HUNTER PASTEUR HOMES
NORTHVILLE, LLC
32300 NORTHWESTERN HIGHWAY, SUITE 125
FARMINGTON HILLS, MI 48334

THE DOWNS
NORTHVILLE, MICHIGAN

STREAM
STABILIZATION DETAILS

BARR PROJECT No. 22921268.00
CLIENT PROJECT No.
DWG. No. C-04
REV. No. B



PROPOSED CONDITIONS LEGEND

- 920 — PROPOSED MAJOR CONTOUR
- 919 — PROPOSED MINOR CONTOUR
- 1+00 — PROPOSED ALIGNMENT
- PROPOSED CENTERLINE
- SHRUB PLANTING ZONE

* SEE SHEET C-06 FOR RESTORATION SEED MIXES & DETAILS

EXISTING CONDITIONS LEGEND

- LIMITS OF CONSTRUCTION
- PROPERTY LINE
- EXISTING EASEMENT
- 920 — EXISTING MAJOR CONTOUR
- 918 — EXISTING MINOR CONTOUR
- U — EXISTING OVERHEAD UTILITY
- ST — EXISTING STORMSEWER
- SAN — EXISTING SANITARY SEWER

1 - RESTORATION PLAN

0 40 80

SCALE IN FEET

SEED MIX SCHEDULE

SYMBOL	01 GENERAL DESCRIPTION	QTY
	WET-TO-MESIC PRAIRIE SEED MIX	38,679 SF
	MIDWEST MESIC POLLINATOR SEED MIX	57,760 SF

PRELIMINARY DRAFT
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09/01/23	—	—	—	—	—	B
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STREAM
RESTORATION PLAN

BARR PROJECT No.	22921268.00
CLIENT PROJECT No.	
DWG. No.	C-05
REV. No.	B

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WET-TO-MESIC PRAIRIE SEED MIX

Botanical Name	Common Name	PLS Oz/Acre
Permanent Grasses/Sedges		
Andropogon gerardii	Big Bluestem	16.00
Calamagrostis canadensis	Bluejoint Grass	1.00
Carex lurida	Bottlebrush Sedge	3.00
Carex stricta	Common Tussock Sedge	0.75
Carex vulpinoidea	Brown Fox Sedge	2.00
Elymus virginicus	Virginia Wild Rye	24.00
Juncus dudleyi	Dudley's Rush	0.25
Panicum virgatum	Switch Grass	2.00
Scirpus atrovirens	Dark Green Rush	1.00
Sorghastrum nutans	Indian Grass	8.00
Spartina pectinata	Prairie Cord Grass	2.00
	Total	60.00
Temporary Cover		
Avena sativa	Common Oat	512.00
	Total	512.00
Forbs		
Asclepias incarnata	Swamp Milkweed	2.00
Asclepias syriaca	Common Milkweed	2.00
Baptisia lactea	White Wild Indigo	1.00
Chamaecrista fasciculata	Partridge Pea	8.00
Coreopsis lanceolata	Sand Coreopsis	4.00
Coreopsis tripteris	Tall Coreopsis	1.00
Desmodium illinoense	Illinois Tick Trefoil	0.50
Doellingeria umbellata	Flat-Top Aster	0.50
Echinacea purpurea	Broad-Leaved Purple Coneflower	4.00
Eryngium yuccifolium	Rattlesnake Master	2.00
Helenium autumnale	Sneezeweed	1.00
Helianthus grosseserratus	Sawtooth Sunflower	0.50
Lespedeza capitata	Round-Headed Bush Clover	1.50
Liatris spicata	Marsh Blazing Star	1.00
Monarda fistulosa	Wild Bergamot	1.00
Oligoneuron rigidum	Stiff Goldenrod	1.00
Parthenium integrifolium	Wild Quinine	1.00
Penstemon digitalis	Foxglove Beard Tongue	1.00
Physostegia virginiana	Obedient Plant	0.25
Pycnanthemum virginianum	Common Mountain Mint	0.50
Ratibida pinnata	Yellow Coneflower	4.00
Rudbeckia hirta	Black-Eyed Susan	4.00
Rudbeckia laciniata	Wild Golden Glow	1.00
Rudbeckia subtomentosa	Sweet Black-Eyed Susan	0.50
Senna hebecarpa	Wild Senna	2.25
Silphium integrifolium	Rosin Weed	1.00
Silphium laciniatum	Compass Plant	3.00
Silphium perfoliatum	Cup Plant	2.00
Silphium terebinthinaceum	Prairie Dock	1.00
Solidago juncea	Early Goldenrod	0.25
Solidago rugosa	Rough Goldenrod	0.25
Symphyotrichum lanceolatum	Panicled Aster	0.50
Symphyotrichum novae-angliae	New England Aster	0.50
Tradescantia ohiensis	Common Spiderwort	1.25
Vernonia fasciculata	Common Ironweed	3.00
Veronicastrum virginicum	Culver's Root	0.25
Zizia aurea	Golden Alexanders	1.00
	Total	59.50

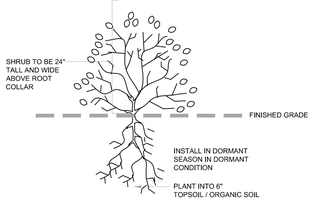
MIDWEST MESIC POLLINATOR SEED MIX

Botanical Name	Common Name	PLS Oz/Acre
Permanent Grasses/Sedges		
Schizachyrium scoparium	Little Bluestem	36.00
Sorghastrum nutans	Indian Grass	2.00
Sporobolus heterolepis	Prairie Dropseed	6.00
	Total	44.00
Temporary Cover		
Avena sativa	Common Oat	512.00
	Total	512.00
Forbs		
Agastache foeniculum	Lavender Hyssop	2.00
Allium cernuum	Nodding Onion	2.00
Amorpha canescens	Lead Plant	2.00
Asclepias syriaca	Common Milkweed	10.00
Asclepias tuberosa	Butterfly Weed	2.00
Baptisia bracteata	Cream Wild Indigo	1.00
Chamaecrista fasciculata	Partridge Pea	8.00
Dalea candida	White Prairie Clover	3.00
Echinacea pallida	Purple Coneflower	4.00
Echinacea purpurea	Broad-Leaved Purple Coneflower	8.00
Eryngium yuccifolium	Rattlesnake Master	2.00
Liatris pycnostachya	Prairie Blazing Star	1.00
Lupinus perennis v. occidentalis	Wild Lupine	4.00
Monarda fistulosa	Wild Bergamot	2.00
Penstemon digitalis	Foxglove Beard Tongue	1.00
Penstemon hirsutus	Hairy Beard Tongue	1.00
Pycnanthemum virginianum	Common Mountain Mint	0.50
Senna hebecarpa	Wild Senna	4.00
Silphium perfoliatum	Cup Plant	1.00
Solidago speciosa	Showy Goldenrod	1.00
Symphyotrichum laeve	Smooth Blue Aster	1.00
Symphyotrichum novae-angliae	New England Aster	0.50
Tradescantia ohiensis	Common Spiderwort	2.00
Verbena stricta	Hoary Vervain	2.00
Verbesina alternifolia	Wingstem	2.00
Vernonia gigantea	Smooth Tall Ironweed	1.00
	Total	68.00

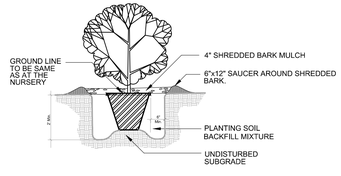
Common Name	Scientific Name	Size	Qty.
Buttonbush	*Cephalanthus occidentalis*	varies	48
Dogwoods	*Cornus amomum and C. foemina*	varies	48
Winterberry	*Ilex verticillata*	varies	48
Spicebush	*Lindera benzoin*	varies	48
Wild Black Currant	*Ribes americanum*	varies	48
Elderberry	*Sambucus canadensis*	varies	48
Nannyberry	*Viburnum lentago*	varies	48
	Shrub Subtotal		**336**

Shrub massings to include a mix of species from this list provided based on availability at time of installation. Shrubs to include 25% 1-gallon sized material and 75% bare root and/or plug-sized material.

Shrubs to be planted at an average density of 5 feet on-center in the locations indicated on the drawings.



1 - DETAIL: BARE ROOT SHRUB PLANTING DETAIL
NOT TO SCALE



2 - DETAIL: CONTAINERIZED SHRUB PLANTING DETAIL
NOT TO SCALE

General Notes

1. CONTRACTOR shall furnish all labor, materials, equipment, transportation, services and necessary incidental work required to complete work as shown on the Drawings and/or as specified herein.
2. All work shall comply with all applicable permits and ordinances.
3. In general the work includes:Clearing and grubbing; erosion control; earthwork; storm drainage; supply and installation of tree-based stabilization structures, supply and installation of native plant seed; and, supply and installation of trees and live stakes.
4. Conduct site clearing operations to insure minimum interference with roads, streets, walks and other adjacent occupied or used facilities. Do not close or obstruct streets, walks, and other adjacent occupied or used facilities without permission from authorities having jurisdiction.
5. Limits of work are established on the Drawings and shall be verified with the Design Consultant prior to any construction activities. No vehicle activity shall occur outside the limit of construction area.
6. Contractor is responsible for procuring and complying with any additional permits that may be required by any governing agency for the completion of this project, including, but not limited to, soil erosion control permits and county drain permits.
7. Disposal of excess excavated soil material and materials not acceptable for use as fill shall be place at an upland location off-site. Stockpiled excess material shall be graded and stabilized with seed to prevent erosion into any existing wetland or watercourse.
8. No work shall occur during periods of high water flow in river.

Utilities

1. Locations of existing underground utilities are shown as per Alpine Engineering survey, but with no guarantee that indicated locations are accurate or that lines other than those shown may or may not be present.
2. Contractor and those subcontractors affected by site conditions shall be fully responsible for any deductions or conclusions made on the basis of this information and that of any additional site inspections, if made.
3. "MISS DIG" shall be contacted by Contractor for location of underground utilities prior to start of work. It should be understood that MISS DIG will not locate private lines, only utility company lines and the Contractor will be responsible for verifying all locations.
4. Conflicts between utilities and proposed work shall be reported to Design Consultant prior to construction.

Layout

1. Contractor shall establish and maintain grades, benchmarks, and all other significant reference line or points as shown on the drawings. Layout of elevations and alignments shall be performed by a licensed surveyor. Design Consultant shall review the layout of all grading areas and structure locations prior to construction.
2. The Contractor shall designate a full-time Project Supervisor, who is authorized to act as his/her agent and to be responsible for all subcontractors. The Project Supervisor shall be designated by name prior to commencement of the work and shall be available for proper supervision of the project for the duration of the EGLE permit and/or contract.

Sequence of Construction

1. Hold a pre-construction meeting with all parties involved. Examine the site to ascertain the state and conditions under which the work is to be done and review conditions of all applicable permits. Design Consultant and Contractor shall field-locate construction access corridor and evaluate suitability of on-site tree material for stabilization structure at this time.
2. Install erosion control measures and tree protection to the limits shown on the drawings.
3. Clear and grub woody vegetation within the limits of work, if required.
4. Survey and stake proposed layout for site construction. Design Consultant to review contour staking for earthwork.
5. Excavate and fill within the limits of work to the required sub-grade elevations.
6. Survey and stake site for sub-grade elevations. Design Consultant to review and approve the subgrade prior to the placement of topsoil.
7. Survey and stake proposed layout for stabilization structures. Design Consultant to review staking and shall be onsite during structure construction.
8. Construct stabilization structures in accordance with the EGLE permit and as shown on the drawings.
8. Place and spread topsoil. Apply soil binding polymer to all sloped bare soil areas. Geoweb, geogrid or any specified soil erosion/stabilization fabric installation shall occur in conjunction with topsoil placement.
9. Stake limits of seeding/planting and provide submittals to Design Consultant prior to seed placement. Design Consultant to approve seed mix and limits of seeding.
10. Immediately following seed staking, install B&B and/or containerized trees and shrubs according to specifications and plan details. Design Consultant may stake the location of all or some of the plant material.
11. Upon completion of tree and shrub planting, restore to finish grades any disturbed areas during the planting activities.
12. Immediately following planting, seed the areas with specified and approved seed mixes.
13. Provide straw mulch over seeding areas (if no erosion control blanket is specified) or apply erosion control blanket on slopes as shown on the drawings.
14. Contractor to provide as-built drawings to the Design Consultant and/or Owner.
15. Meet with Design Consultant to review the newly created slope stabilization efforts and obtain a copy of the as-built drawings.
16. Remove tree protection and soil erosion control measures when approved by Design Consultant and provide site clean-up.

Grading Specifications

General Notes

1. Upon issuance, all work shall comply with EGLE Permit and other issued permits.
2. The contractor is responsible for supplying all materials, labor, equipment, transportation, all all services incidental to clearing, grading, seeding, soil stabilization, and clean up of the stabilization areas.
3. Erosion controls are to be installed to the limits indicated on the plan and to the detail provided. Any damage to the existing wetlands not indicated on the plans shall be repaired immediately, with these areas being restored to their original character at the contractor's own expense. All pre-erosion control measures shall be removed after final acceptance of work, unless suggested by the Design Consultant to remain in place. Care shall be taken during removal to minimize the loss of the accumulated sediment. If necessary, all silt and sedimentation is to be immediately removed from adjacent wetland or water courses.
4. All trash and debris shall be removed from the site and legally disposed of upon completion of grading activities. Repair to their original character areas outside the work limits damaged by operating under the contract. Repair shall include finish grading and seeding as required to match existing grade and conditions, and maintenance of repaired areas.

Earthwork

1. Sub-grades in planting areas shall be six inches lower than proposed finished grade contours and spot elevations to allow for the placement of topsoil. Topsoil shall be salvaged topsoil from the stabilization area or from an approved source.
2. Unless indicated otherwise, grade evenly between points and contours or between such points or contours and existing grades. Acceptable grade tolerance shall not exceed three inches (0.25 feet) from proposed grades specified on the plans to accommodate minor ruts, dirt clumps, organic matter and the like. Design Consultant may adjust grades in-field based on site conditions to accommodate the intent of the slope stabilization project. Care shall be taken to not excavate below the depths indicated. Contractor shall be responsible for any unauthorized excavation and/or fill operations. Notify Design Consultant, minimum three business days, for sub-grade verification.
3. Remove water accumulation in excavation area (if required) to prevent soil changes detrimental to the stability of the sub-grade. Provide and maintain erosion control measures and sufficient dewatering devices such as pumps, hoses, strainers and other appurtenance required to convey the water from excavations Water shall be discharged at an upland location a sufficient distance from the excavations to prevent backflow. Care shall be taken to prevent water borne silt from dewatering operations from entering existing wetlands and watercourses.
4. Subsoil fill material (if required) shall be installed in six-inch lifts and compacted to 90% minimum.
5. Surplus excavated material or material unsuitable for filling or grading operations (including all wetland excavation material) shall be disposed of in an upland location off-site. Temporarily stockpiled excess material shall be graded and stabilized to prevent erosion into any existing wetland or watercourse.
6. Place and spread the approved topsoil at a minimum depth of six inches over the entire seeding area. Topsoil shall be spread roughly such that minor ruts, dirt clumps and organic matter are acceptable. Topsoil compaction during spreading operations shall occur only to the degree that shall prevent settlement beyond the specified grade tolerance. Avoid over compacting beyond that provided by the spreading equipment. Over compacted topsoil shall be thoroughly loosened by scarifying or plowing to a depth of six inches. Notify Design Consultant, minimum three business days, for final acceptance of the finished grades.

Bank Stabilization Structures

1. Contractor shall furnish all labor, materials, equipment, transportation, services and necessary incidental work required to complete work as shown on the Drawings and/or as specified herein.
2. Design Consultant shall be on-site to observe the construction of all stabilization structures. Notify Design Consultant, minimum three business days, for timing of stabilization structure installation.

Planting and Seed Specifications

General Notes

1. Contractor shall furnish all labor, materials, equipment, transportation, services and necessary incidental work required to complete work as shown on the Drawings and/or as specified herein.
2. Plants shall comply with the recommendations and requirements of ANSI Z60.1, "American Standard for Nursery Stock". Plants shall be healthy, vigorous stock, grown in a recognized nursery in accordance with good horticultural practice and free of disease, insects, eggs, larvae and defects such as knots, sunscald, injuries, abrasions, or disfigurement.
3. Planting shall be done by a single Contractor specializing and experienced in landscape work and with a documented history of successfully establishing native landscapes.
4. Tree and live stake delivery shall be the same day as planting. No plants shall be stored at the site without permission of the Owner's Representative. Plants shall be carefully loaded and unloaded so as not to damage branching or root mass. Dropping of material will not be allowed. Plants in full leaf shall be thoroughly wetted down and completely covered with a wet tarp during transportation. All plant roots must be kept in a moist condition.
5. Plant material shall be the size and true native genus and species shown and scheduled on the drawings and of Michigan genotype. No hybrids or cultivars will be accepted.
6. All plants shall be labeled with securely attached waterproof tag bearing legible designation of botanical and common name. See submittals for requirements of native seed.
7. Mulch shall be shredded hardwood bark mulch free from deleterious materials, sticks, twigs, etc., and suitable for top dressing of trees, shrubs, and planting beds.
8. Warranty Period shall be at the end of the first full growing season. A full growing season is defined as the beginning of May through the end of October of the same year. If installation occurs after June 15, the warranty period shall be extended through the end of October of the next year so as to achieve a full growing season.

Planting

1. Contractor shall notify Design Consultant, minimum of three business days, prior to planting to assist in the layout of the woody plant material and provide a copy of plant material order and receipt.
2. Complete all live stake plantings between March 1 - May 30 or October 15 - November 30 or when plants are dormant or soil is not frozen. Complete all tree plantings between March 1 - June 15 or October 1 - November 30 or when plants are dormant or soil is not frozen, or provide supplemental watering if outside these planting windows.
3. All trees, shrubs, plugs and live stakes to be planted as shown on details.
4. Warranty shall include a 95% survival rate for each species. Replace all plants in accordance with specifications.
5. Plant maintenance shall be begin immediately after each plant is installed and shall continue as required until the end of the warranty period. Maintenance will include watering and cultivation.

Seeding

1. Stake limits of seeding and provide seed mix submittals to Design Consultant for approval.
2. Approval of Design Consultant must be obtained for seed bed preparation and staking prior to seeding.
3. Install seed immediately following B&B and/or containerized tree and shrub planting.
4. Install seed between the dates of March 1 through May 30 or October 15 through November 30 or as conditions permit. If seeding occurs between June 15 through October 1, the Contractor is responsible to adequately water the mitigation sites on a consistent basis for seed germination and establishment. Contractor shall notify the Design Consultant for the timing of seed installation.
5. Uniformly broadcast specified seed over the specified areas at the specified rates. Provide a carrier (silica sand or other approved material) to ensure uniform distribution of seed.
6. Immediately following seeding, apply specified erosion control blanket.
7. Seed warranty shall be 70% cover of the seeded areas by species contained in the seed mix at the end of the first season. Seed mixes shal be maintained by a contractor as needed to meet the warranty requirement.
8. No fertilizers shall be used. with native seed mixes unless approved by Design Consultant.

Submittals

1. Contractor shall provide to the Wetland Consultant the following submittals:
   a. Seed Mix
   b. Woody Plant Material order and receipt.

Soil Erosion Maintenance

1. Contractor is responsible for maintaining all soil erosion and sedimentation control measures.
2. Maintenance shall include any and all activities necessary for the project to remain in compliance with the Soil Erosion and Sedimentation Control permit issued for the project.

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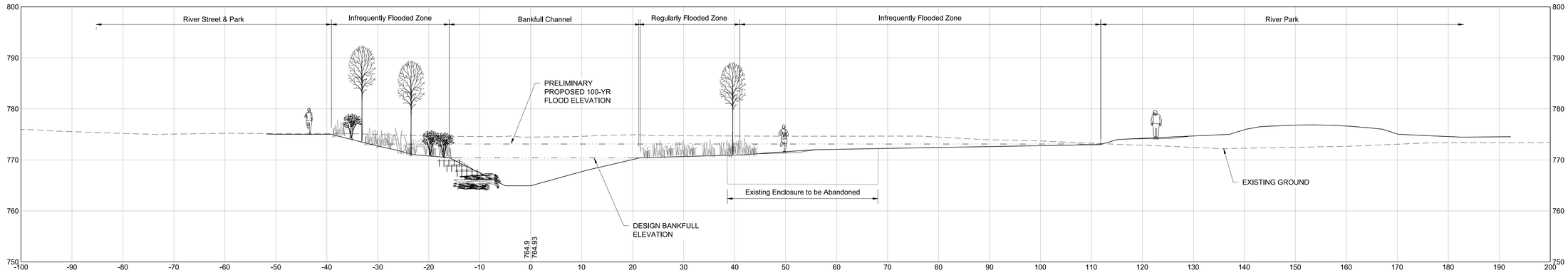
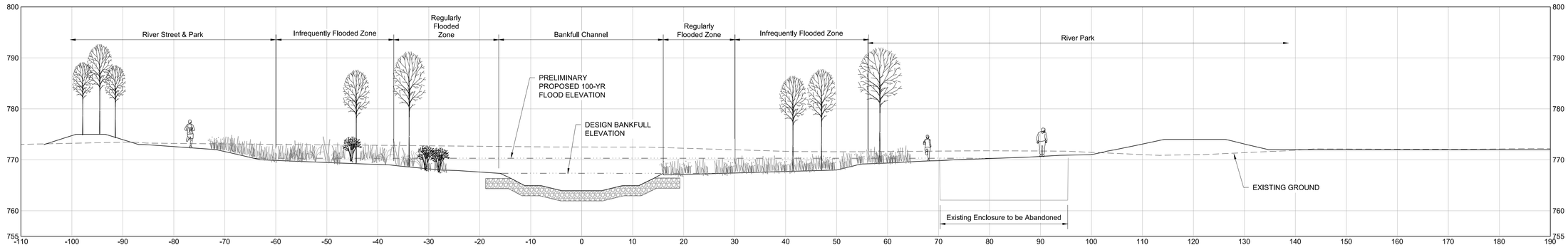
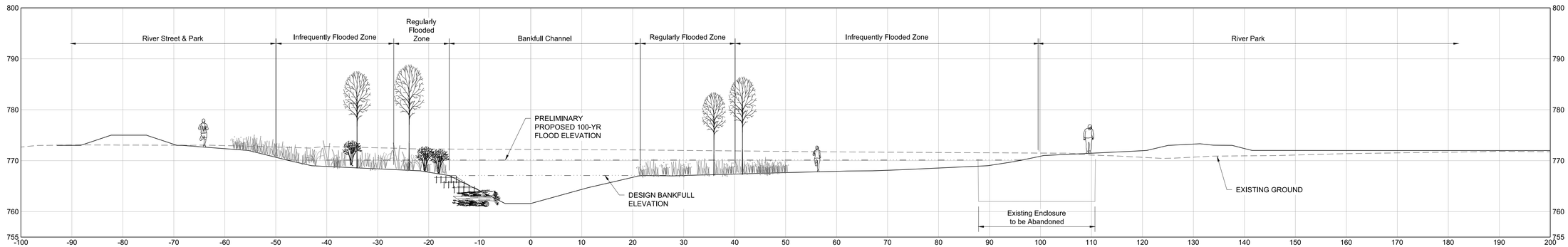


1 - SECTION: RIVER SECTION THROUGH POOL STA. 2+60



2 - SECTION: RIVER SECTION THROUGH RIFFLE STA. 7+05



3 - SECTION: RIVER SECTION THROUGH POOL STA. 7+60

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Scale	AS SHOWN
Date	04/25/2023
Drawn	MES2
Checked	PJH2
Designed	PJH2
Approved	MES2

HUNTER PASTEUR HOMES
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THE DOWNS
NORTHVILLE, MICHIGAN

STREAM
RESTORATION SECTIONS

BARR PROJECT No.	22921268.00
CLIENT PROJECT No.	
DWG. No.	C-07
REV. No.	B