MEMORANDUM

State of Alaska

Department of Transportation & Public Facilities
Design and Engineering Services

TO: Design Group 2

DATE: July 12, 2023

TELEPHONE NO: (907) 465-1796

FROM: James Brown
Design Group Chief
DOT&PF

SUBJECT: Pre-Environmental Design Review Guidance

Although we already have been using the Pre-Environmental Review (PER) in the office on a few projects, I want to make a push to use these on all of our projects as they can be used as a tool to identify scope of work, design, or constructability issues early in a project's design life.

Generally, enough information is known to start project development after a reconnaissance review and the draft PMP has been initiated. Any adjustments to the project scope of work should also be discussed with support groups and planning staff and changes made if necessary to its scope at this time. An average project requires 25% to 50% of its design completed to finalize an accurate environmental document. There are cases where this percentage could be higher. FHWA guidance for boundaries of preliminary project development in advance of the environmental document can be found at FHWA Order 6640.1A.

The PER review for preventative maintenance projects should generally be completed within approximately 10 months of project assignment. Rehabilitation and more complex projects could require significantly more time to have their environmental impacts defined.

A draft version of the PMP, Design Criteria Checklist, and Environmental Memo and Impacts Table should also be submitted with the project plans to the review engineer. Design and Environmental coordination for the review is as follows:

Design/Production PER Guidance

Plans for the Review are to Include:

1. Index and Title Sheet.

2. Typical Cross Sections
   note: include cross sections for any culvert or bridge work

3. ‘F’ Sheets depicting:
    i. Existing topography
    ii. Existing ROW locations
    iii. Beginning and End of Project
    iv. Design Horizontal Alignment (e.g., horizontal curve data, PC, PI, PT, bearings)
    v. Design Vertical Alignment and its relationship to grade controlling features (culverts, etc)
    vi. Drainage Design including new ditch profiles
    vii. Construction limits and area of ground disturbance including acreage for CGP determination
    viii. Preliminary Public-Road Approach and drive locations
    ix. Guardrail replacement locations
    x. Drainage ditch relocation or construction areas
    xi. Known wetland and Waters of the US locations
    xii. Anadromous streams directly adjacent to the project / within project limits
    xiii. Material Sites (FAA)
    xiv. Contaminated Material sites
    xv. Proposed waste disposal sites
    xvi. Lighting (viewshed)
    xvii. Project Area of Potential Effect (APE) Boundaries ** (see note)
    xviii. Known eagle nest locations
    xix. Known 4(f) properties (public parks, recreation areas, wildlife and waterfowl refuges, historic sites)
    xx. Bridge / Retaining Walls / Signal Poles etc locations

Note: The APE linework is to be developed by a PQI upon completion of the PER in a subsequent follow up meeting with design, construction, environmental, and right of way staff.

Traffic Maintenance Details

i. The conceptual traffic-maintenance strategy and phasing should be detailed and included with the PER submittal.

Design Criteria Checklist

ii. Include a completed Precon Criteria Design Checklist. I have included the current version of this form with the latest version of the Federal Highway Controlling Criteria. Verify these criteria have not changed on the FHWA website here prior to filling out the checklist. This form is to be submitted with the PER package (and updated if necessary) and all subsequent reviews.

Hydraulics and Hydrology

i. Copies of preliminary hydraulic analysis for each mainline culvert.

Waters of the US - Fill / Fish Passage Design Detail Sections

i. Fish Passage sections depicting volume of fill below OHW.
ii. Locations of impacts to other bodies of water known as Waters of the US and fill quantities (cubic yards) that will be placed below OHW or HTL/MHW/MLLW levels.
iii. Estimated area of wetland involvement (acres).
iv. Include the HTL/MHW/MLLW or OHW elevations on typical sections if there is any work in, over or under navigable waters of the United States.

Cross Sections (as necessary pending improvement type) Including:

1. Templates of the typical sections placed on the existing cross sections.
2. Profile grade elevations.
3. Mainline drainage structures.
4. Existing ROW limits

Preliminary Material Recommendations:

These may be a simple as an email summarizing general field findings and recommendations.

1. Preliminary Pavement Recommendations.
2. Preliminary Slope Repair Recommendations.
3. Fish Passage Locations and Culverts > 48" requiring repair.
4. Areas involving repair or construction of retaining walls.

Environmental Coordination:

1. Contact the environmental analyst to go over known historic resources in the project vicinity prior to beginning design on the PER planset. An overview graphic of historic resources located within the project area should be developed in the early stages of project development if resources are present. The intent of this graphic is to assist the design and environmental team in development of the APE for the project and where a higher level of design will be necessary to determine the impacts of the project to them going into the PER.
2. Contact the environmental analyst to review known waters of the US or wetlands located within the project limits. Impacts to these resources are to be designed to the point they are defined going into the PER. A graphic of these resources overlaid onto the project limits should also be developed at this time.
3. Contact the environmental analyst to review known 4(f) resources located within or adjacent to the project limits. Knowing where 4(f) resources are in relation to project activities is important for identifying knowing whether there might be a use of a 4(f) resource or exception to 4(f). Each of these require coordination with the Official(s) with Jurisdiction and a use would need specialized public notice efforts.
4. Contact the environmental analyst assigned to the project a minimum of two weeks prior to PER submittal to request the Environmental Memo and Impacts Table.

5. Before submittal of the PER package review the Environmental Memo and Impacts Table for consistency with the current design and provide any comments to the environmental analyst so they can be addressed in advance of the PER submittal.

Utility Coordination:

1. Contact should be made with existing utilities for work to be coordinated with the project and areas where work is anticipated to impact utilities.
2. Provide a summary of anticipated utility work if not shown on the plans.
3. If known, a description of any utility "work by others".

Bridge Coordination:

1. Contact should be made with the Bridge section if there are bridges on the project. Include fill quantities below OHW or HTL and MHW and pile quantities, including anticipated temporary piles. Include the HTL/MHW/MLLW or OHW elevations on typical sections if there is any work in, over or under navigable waters of the United States.
2. Depending on the project scope review documents may include: work items from the latest inspection reports; Bridge 3R analysis; Type, Size, and Location (TS&L) memo, etc.

Estimate

1. If you want comments on the budget, provide an estimate. At this point a detailed estimate may not be available. Major items with a contingency is acceptable.
2. Provide quantity calculations for major work items.

Construction Limits

Definition: A shrink-wrapped, closed polyline that encompasses the edge of all permanent construction work. Where two items are near the edge of construction, the outermost one will prevail. Examples of entities to encompass include but are not limited to:

- Lines of cut and fill
- Clearing limits
- Outer edge of grading
- Paving limits
- Joints, and locations where the project ties back into existing
- Concrete pads and back of sidewalk
- Utility installation or improvements and replacements
- Sign posts bases, fences, and similar improvements
- Around culverts following the outer edge of pipe

- Temporary access roads and bridges
- Other physical elements permanently incorporated into the project.

It is typical for the construction limits to surround the complete perimeter of a project, also including the beginning and end of the project.

Items typically not included in the construction limit linework are temporary stabilization, dewatering, sediment control BMPs, and anything not permanently incorporated into the project. However, these items still must fall within the existing ROW or an easement acquired for the project.

APE / Construction Staging / Right of Way Impacts and Construction Easements

The design project manager is to schedule a meeting upon completion of the Pre-Environmental review (and updates if necessary) with Construction, Environmental, and Right of Way staff to discuss:

- Right of Way involvement resulting from the designed project construction limits
- Contractor Access. The contractor access areas are to be developed upon completion of the PER and any updates to the construction limits resulting from it. Anticipated contractor access to complete the work shown in the updated PER plans is to be shown as 'Construction Access' in this Pre-ROW development meeting. The construction access limits are to be displayed in a different line style than the construction limits as defined above.
- Field Offices
- Stockpile locations
- Area of Potential Effect (APE) Environmental Discussion

Material Source Identification

Follow the material site best practices and flow chart attached as an appendix to this document. Discuss with materials the need for any off-site material. Construction, Environmental, and Right of Way staff may need to be involved depending on if off-site materials are used.

- Construction and materials staff can assess the contractor need to develop material sites, or haul material from outside the project limits.
- Coordinate with Environmental staff and inform them of off-site materials to assess impacts outside of the project limits.

Public Involvement

- Public involvement, including the public notice and agency scoping efforts, will occur after the PER.
- The Project Manager will engage with the local government after the PER to begin early coordination for local concurrence.
- The Environmental Analyst will coordinate with Design staff to finalized the Public Involvement Plan (PIP) after the PER meeting.
- The PIP will define what level of effort is needed, such as meetings with stakeholders or outreach to certain groups.
- After PER, the Project Manager and Environmental staff will coordinate with Construction to establish a list of organizations that may be impacted during construction.
- The Project Manager and Environmental staff will coordinate with Construction on tailoring 643 to meet the needs of the project.

Environmental Analyst PER Guidance

The Pre-Environmental Design Review will typically be conducted before the public notice and agency scoping have been completed. This is so that ambiguities in project scope can be addressed prior to issuing public notice or beginning collaboration with outside agencies. For very simple projects or projects that have had proper field recon, an exception to this order of operations may be acceptable. The environmental analyst should consult the project manager for which direction to proceed. The intent of providing an Environmental Memo and Impacts Table at this stage is to ensure that impacts from the project are identified.

The Environmental Impacts Memo will include the project description, any anticipated environmental concerns, and schedule impacts so that constructability or timing issues can be identified early on. The Impacts Table is similar to that included with a standard Class of Action. Fill the table out with the most up to date project information and have the Project Manager review in advance of the PER submittal.

CC: Greg Weinert, Right-of-Way Chief
Ben Storey, Regional Environmental Manager

Attachments: Environmental Impacts Table

DESIGN CRITERIA CHECKLIST

Project Name Page of

State Project No. Fed. Project No.

Functional Classification: Terrain:

Present Year (&ADT): Design Year (&ADT):

DHV (%): Directional Split (%): Percent Trucks:

Pavement Design Year: Pavement Design ESAL:

Design Turning Vehicle: Design Accommodated Vehicle:

Project Type: Choose an item.

FEDERAL 10 CONTROLLING DESIGN CRITERIA		SOURCE	STANDARD	AS DESIGNED	EXCEPTION[1]
1. Design Speed[1]			mph	mph	Choose an item.
2a. Travel Lane Width			ft	ft	Choose an item.
2b. Auxiliary Lane Width			ft	ft	Choose an item.
3a. Outside Shoulder Width			ft	ft	Choose an item.
3b. Inside Shoulder Width			ft	ft	Choose an item.
3c. Auxiliary Lane Shoulder Width			ft	ft	Choose an item.
4. Horizontal Curvature Radius			ft	ft	Choose an item.
5. Superelevation Rate*, e(max)			%	%	Choose an item.
6. Stopping Sight Distance (SSD)*			ft	ft	Choose an item.
7. Grade	Min.		%	%	Choose an item.
	Max.		%	%	Choose an item.
8. Cross Slope			%	%	Choose an item.
9. Vertical Clearance*			ft	ft	Choose an item.
10. Design Loading Structural Capacity[1]					Choose an item.

** Attach calculations.*

1. On low speed roadways (<50 mph) on the NHS only Design Speed and Design Loading Structural Capacity require a Design Exception; all other criteria become a Design Waiver. For projects off the NHS, all criteria become a Design Waiver.

OTHER DESIGN CRITERIA		SOURCE	STANDARD	AS DESIGNED	WAIVER
Superelevation Transition*, Δ			%	%	Choose an item.
Bridge Clear-Roadway Width			ft	ft	Choose an item.
Vertical Curvature, Min.	K(crest)				Choose an item.
	K(sag)				Choose an item.
Lateral Offset to Obstruction			ft	ft	Choose an item.
Surfacing Material					Choose an item.
Clear Zone Slope					Choose an item.
Clear Zone Width			ft	ft	Choose an item.
Bicycle Lane Width			ft	ft	Choose an item.
Sidewalk Width			ft	ft	Choose an item.
Intersection Sight Distance, Left Turn*			ft	ft	Choose an item.
Right Turn*			ft	ft	Choose an item.
Crossing*			ft	ft	Choose an item.
Passing Sight Distance			ft	ft	Choose an item.
Degree of Access Control					Choose an item.
Median Treatment					Choose an item.
Median Width			ft	ft	Choose an item.
Illumination					Choose an item.
Curb Type					Choose an item.

* *Attach calculations.*

Notes:

Proposed by: _____ Date: _____
Designer Signature (Consultant or Staff)

Approved by: _____ Date: _____
Design Manager

Environmental Impacts Table

- Project Description
- Date of Scoping & Notice
- Anticipated Environmental Concerns
- Schedule Impacts (time sensitive needs; ex: timeframes for consultation or a consultation can't be started until design is at a certain level)

Summary of resources that could be significantly impacted and mitigation/permitting requirements		
CE Resource Category	**Possible Impact**	**Possible Mitigation/ Permitting needed**
ROW		
Social/neighborhood cohesion		
Travel patterns/accessibility		
Access control		
School boundaries etc.	.	
Elderly, handicapped etc.		
Local Indian tribe		
Economic		
Land Use/Trans Plans		
Historic Properties		
Wetlands		
Water Body		
Wild and Scenic River		
Fish		
Wildlife (eagles etc.)		
T&E		
Hazardous Waste		
Invasive Species		
Air Quality		
Floodplain		
Noise (type 1 project?)		
Water Quality		
Construction		
Section 4f/6f		
23 CFR 771.117(b)(2): Is there substantial controversy on environmental grounds ?		
23 CFR 771.117(b)(3): Significant impacts on Section 4f or Section 106 protected properties?		
23 CFR 771.117(b)(4): Are there inconsistencies with Federal, state, or local laws, etc?		

MEMORANDUM

State of Alaska

Department of Transportation & Public Facilities
Division Name

TO: Regional Directors
DFS Director

DATE: March 31, 2023

PHONE NO: 465-3900

FROM: Ryan Anderson, P.E.
Commissioner

SUBJECT: Material Site Best Practices

Purpose

Delivering cost effective projects in rural Alaska is becoming increasingly important, as our project needs increase, and funding becomes more constrained with inflation factors and supply chain stresses. This best practices proposal applies to rural Alaska as a loosely defined term, and may include projects both on and off the road system.

Large earthwork projects in rural Alaska that include borrow, processed aggregates, and rock, are one of our highest risk areas, in terms of potential cost increases and construction claims. Working with the contracting community, represented by the Associated General Contractors of Alaska (AGC), we have developed the attached best practices in the assessment and permitting of these material sources, for the purposes of cost effectiveness in our projects.

Guidance

Statewide is working with our federal funding partners to revise the *Alaska Highway Preconstruction Manual* and *Alaska Aviation Preconstruction Manual* to incorporate the best practices included in the attached flow chart.

Until these best practices are incorporated into our manuals, please use the attached flow charts during the design of projects. Use these flow charts on all projects which do not have an approved environmental document. For projects with approved environmental documents, incorporate as many elements of the flow charts as practical that will not unduly delay the project.

The AG's office has indicated a preference to specify the material types by a means other than modifying GCP60 or Section 106. Standardization will be developed as part of the incorporation into the *Preconstruction Manuals.* In the interim, include Right-of-Way and permits for mandatory, designated, and available sites in one appendix labelled with the material source type. Identify imported materials in a notice to bidders, plans, or specifications.

Contact

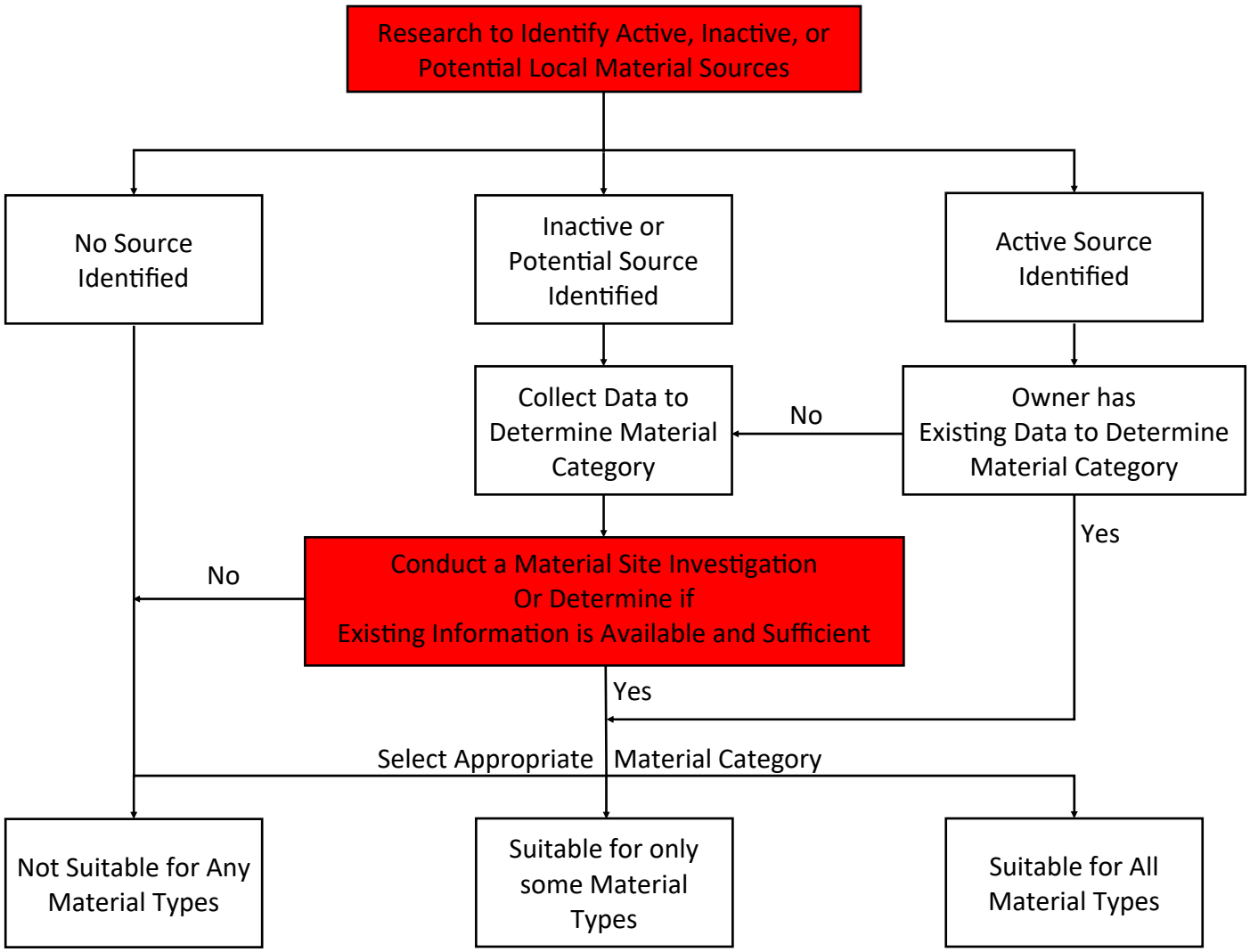
Direct any technical questions on the flow chart to Carolyn Morehouse, Director of Design and Engineering Services.

Attachments: Flow Chart Material Site Best Practices

cc: John Binder, Deputy Commissioner
Katherine Keith, Deputy Commissioner
Carolyn Morehouse, P.E., Director, Statewide Design & Engineering

BEST PRACTICES FOR USING LOCAL MATERIAL SOURCES IN RURAL PROJECT SITES

PART 1– DETERMINE LOCAL MATERIAL CATEGORY



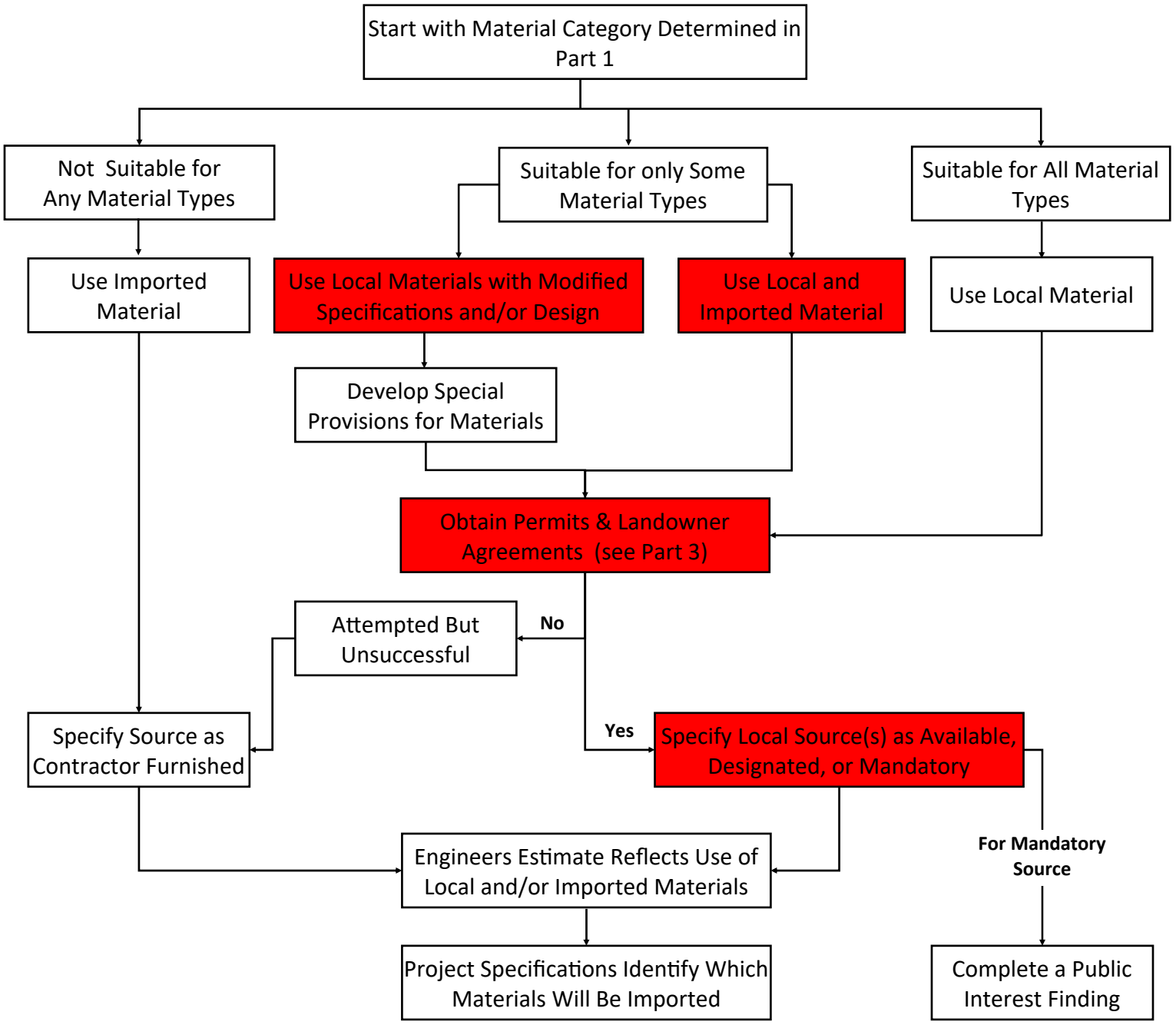
Once Material Category is Determined
Proceed to Part 2 of Flow Chart

Notes:

1. It is the Department's intent to use local material sources to the extent possible. Tasks highlighted in red are those which may require extra effort but add project value by limiting the need for imported materials, reducing the Contractor's effort during bidding to obtain permits and agreements, and providing a fair bidding environment.
2. The Material Site Investigation is completed at the discretion of the Project Manager and following the guidance of the Regional Materials section.
3. Material suitability is determined by the material's conformance with standard specifications.
4. When the local material category is suspected to be, or found to be "suitable for only some material types" extra effort in the materials site investigation may be required. This may include additional sampling, testing, and geotechnical analysis to optimize the typical section.

BEST PRACTICES FOR USING LOCAL MATERIAL SOURCES IN RURAL PROJECT SITES

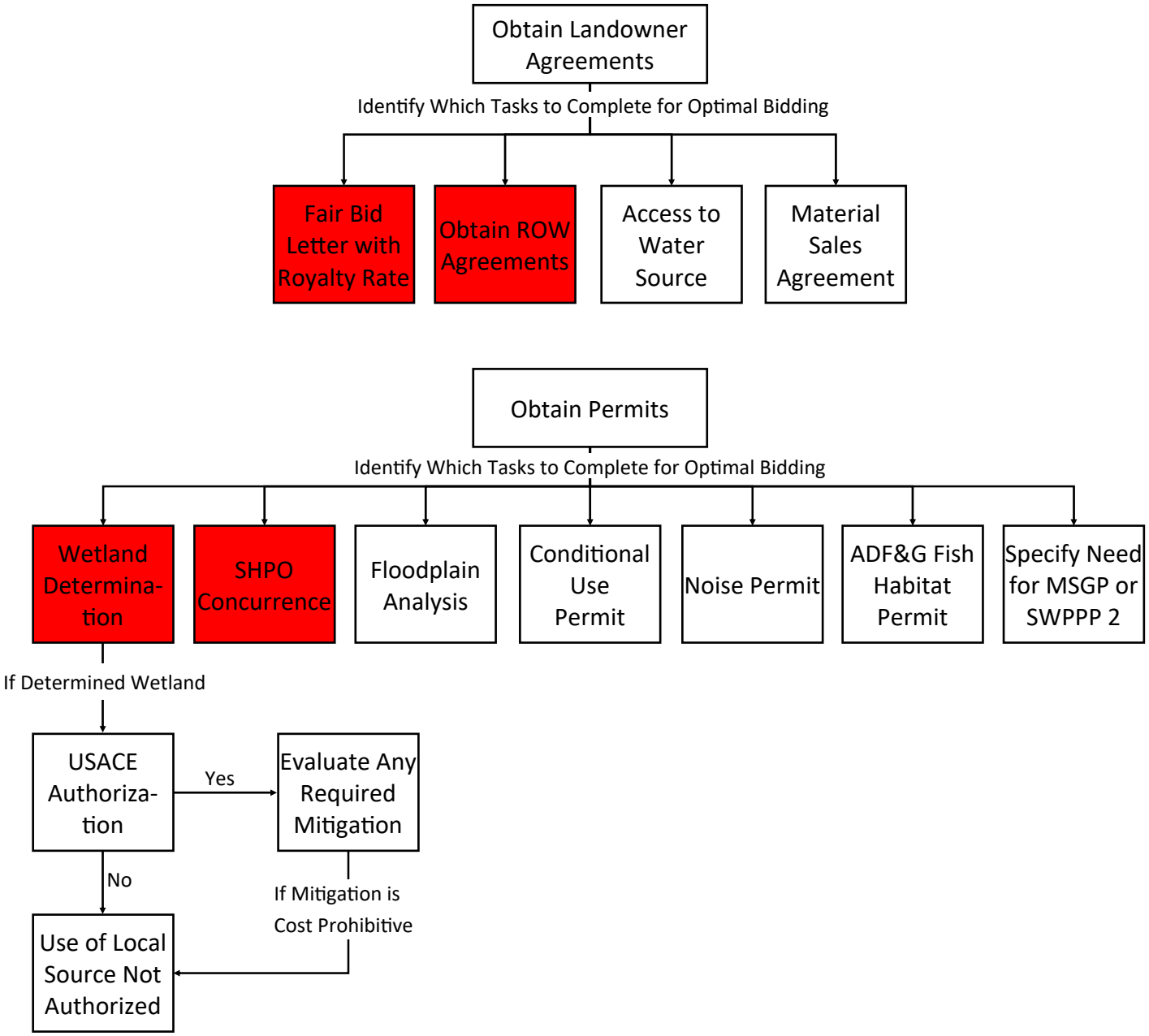
PART 2– DETERMINE OPTIMAL USE OF LOCAL MATERIAL SOURCES



Notes:

1. It is the Department's intent to use local material sources to the extent possible. Tasks highlighted in red are those which may require extra effort but add project value by limiting the need for imported materials, reducing the Contractor's effort during bidding to obtain permits and agreements, and providing a fair bidding environment.
2. Imported materials are those that are brought in from outside the local community.
3. When the local material category is "suitable for only some material types" the designer is encouraged to take extra efforts to make them suitable by either modifying the specifications, blending with imported materials, or making modifications to the typical section.
4. Specifications are to be modified at the discretion of the Project Manager, following all Department policies, ensuring material performance, and to the satisfaction of the funding agency.
5. Identify the material source type in the contract for clarity to the contractor.
6. For direction on the need for a Public Interest Finding see the Airport or Highway Preconstruction Manual, whichever applies.

BEST PRACTICES FOR USING LOCAL MATERIAL SOURCES IN RURAL PROJECT SITES
PART 3– PERMITS AND LANDOWNER AGREEMENTS



Notes:

1. Tasks in Part 3 are intended to reduce the Contractor's effort during the standard three week bidding period and provide a fair bidding environment. Those shown in red are the most helpful to the Contractor and Project Managers are encouraged to complete them.
2. Include all landowner agreements and permits in the contract appendices following existing standards.
3. Fair bid letters and royalty rates, when provided, are obtained by the Project Manager.
4. ROW agreements may include but are not limited to Right of Entry, Temporary Construction Easement, Temporary Construction Permit, and Right of Way purchases.
5. For projects requiring a DNR Temporary Water Use Permit ensure the Contractor has access agreements to the assumed water source.
6. Material Sales Agreements, when provided, are obtained by the joint effort of the Project Manager and ROW section. Obtaining these agreements can be time intensive and are not recommended if the design delivery date will be substantially impacted.